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**NOSE AND EAR COMPLICATIONS IN DIPHTHERIA, SCARLATINA AND MEASLES.\***

BY JOHN H. MCCOLLOM, M.D., BOSTON.

It is not intended in this paper to give a comprehensive account of the different complications of the nose and ear that may occur in the acute infectious diseases; brief allusion will be made only to the more frequent ones.

Secondary diphtheria of the nose and of the ear caused by the excursion of the specific organism from the throat to the nasal passages and to the ear through the Eustachian tube occurs very frequently in the course of an attack of the disease. Methods of treatment have a very considerable influence in increasing the prevalence of ear complications in diphtheria.

Primary nasal diphtheria may either be very severe or it may be of a mild type, depending upon the situation of the membrane. If the disease is situated in the posterior nares, there may be great constitutional disturbance. If the condition of the tissues in this locality is borne in mind, it can be understood that the toxin generated is very readily absorbed and causes death from its effects on the heart. Many patients die from unrecognized nasal diphtheria because no membrane is seen and the first indication of serious trouble is rapid action of the heart known as the *bruit de galop*; or, in some instances, there may be a slow pulse and the physician is often unable, if he does not have the idea of nasal diphtheria in

\* Read (by invitation) at the Eleventh Annual Meeting of the American Laryngological, Rhinological and Otological Society, Boston, June 5 to 7, 1905.

mind, to explain the symptoms. If the membrane forms in the anterior nares, the probability of absorption is reduced to a minimum and there is usually very little constitutional disturbance. The importance of nasal diphtheria of the latter type is the danger of communicating the disease to others. The history of many serious outbreaks of diphtheria is due to the fact that some member of a family or some inmate of an institution has had a profuse discharge from the nose without any constitutional disturbance and has been the focus from which has arisen many severe cases of diphtheria. This is not a theoretical statement, but is the result of experience. Every profuse discharge from the nose, particularly if there is any excoriation about the nostrils, should be looked upon with suspicion and cultures should be taken. If adenoids are to be removed, cultures should always be taken before the operation is performed, for it very frequently happens that a child who has a profuse discharge from the nose immediately after the removal of adenoids or the ablation of the tonsils, has a severe attack of diphtheria. If the operation for cleft palate is to be performed, it is still more important to take cultures; because, if there are any bacilli of diphtheria in the nasal discharge, this organism is sure to grow upon the cut surfaces of the operative tract, and the patient not only has an attack of diphtheria which may be mild or severe, but also the edges of the wound slough and render a second operation much more difficult.

A chronic rhinitis may follow an attack of diphtheria; and on the other hand a patient with a chronic rhinitis, if exposed to diphtheria, is very likely to contract the disease. Laboratory experiments have shown conclusively that the bacilli of diphtheria will not grow on intact mucous membrane and therefore it is a self-evident proposition that all abnormal conditions of the mucous membrane of the nose should be corrected, if possible, by treatment. It is a well-known fact that diphtheria is prevalent in New England, and it is reasonable to suppose that the frequency of the disease is due to the fact that the mucous membrane of the nose and throat of individuals in this locality is in a morbid condition. The characteristic nasal voice of New England proves the truth of the foregoing statement.

While adenoids may not render an individual particularly susceptible to diphtheria, yet, if he contracts the disease, he is much more likely to have a severe attack than a person without these abnormal growths. The persistence of positive cultures after recovery from the acute symptoms is very frequently due to this condition of the naso-pharynx.

Disease of the middle ear frequently occurs in the course of an attack of diphtheria. Irrigation of the nose in diphtheria is a very important factor in increasing the prevalence of otitis media. Some few years ago it was my custom to irrigate the nose when there was a profuse discharge, but I found that I was having altogether too many instances of inflammation of the middle ear. I have therefore abandoned this practice with gratifying results. Another argument against the use of irrigation is the fact that it frightens the patient, if a child, and the struggling caused by the attempt to do this exhausts the strength of the patient and does more harm than good. Cleansing the nostrils with absorbent cotton and insufflating a little calomel accomplishes much more good, so far as my experience goes, than any other procedure. Irrigating the throat, which can be very easily accomplished with a fountain syringe, does not do any harm, but does give a certain amount of relief to the patient. In the majority of instances the chief reliance must be placed on antitoxin.

Irritant applications to the throat in diphtheria are always to be avoided because the amount of inflammation that these cause is very likely to extend to the Eustachian tube and from thence to the middle ear. If one looks back to the early history of the treatment of diphtheria, one cannot help but be surprised at the various irritants that were applied to the throat with the hope of removing the membrane. With our present knowledge of the etiology of diphtheria the only wonder is that any of the patients recovered.

Feeding through the nose in the case of intubed children frequently causes middle ear disease; and, although in certain rare instances it is advisable, in the majority of cases it is better to resort to esophageal feeding or to the Casselberry method.

Mastoiditis requiring operative interference is somewhat infrequent in diphtheria but it does occur. When there is a profuse discharge from the ear even if there is no tenderness over the mastoid region, it seems to me from the standpoint of the general practitioner that operative interference is advisable. The choice of the operation, whether the Schwartz or the Stacke, or a modified one, a combination of the best principles governing the other two, must be made in each individual case based upon the condition of the patient. The patients at the South Department<sup>1</sup> on whom this operation has been performed have done well. No death has occurred that could be attributed either directly or indirectly to the operation, although one patient died from an intercurrent pneumonia.

<sup>1</sup> The mastoid operations at the South Department have been performed by George Leland, M.D., Visiting Aural Surgeon, Boston City Hospital.

The bacilli of diphtheria frequently remain for a long time in the aural discharge although they may not give rise to any symptoms. In many instances, however, a bacillus morphologically resembling the bacillus of diphtheria is found in this discharge. This organism has been very frequently mistaken for that of diphtheria. I have carefully studied this organism, and its life history is entirely different from that of the bacillus of diphtheria. It is very doubtful, if proper care is taken, if a patient with the bacilli of diphtheria in the ear can communicate the disease to others. The conditions are entirely different when a patient has the bacilli of diphtheria in the nose or in the throat.

The influence of scarlet fever in the causation of otitis media is very great. Downie<sup>2</sup> in an analysis of 501 cases of chronic inflammation of the middle ear treated in the Children's Hospital, Glasgow, gives the following figures: Of the 501 cases, 63 or 12.6 per cent. were caused by scarlet fever. Finlayson<sup>3</sup> says that this symptom was present in 10 per cent. of 4339 cases of scarlet fever observed by him. Caiger<sup>4</sup> found otitis media in 11 per cent. of 4015 cases. Burckhart<sup>5</sup> noticed this condition in 33 per cent. of his cases. At the South Department of the Boston City Hospital in 5000 cases of scarlet fever the percentage of middle ear trouble was 18. This condition may appear as early as the fourth day of the disease or it may be delayed until the fortieth day.

When there are severe throat symptoms the rate of involvement of the middle ear may be as high as 50 per cent. In different epidemics of scarlet fever the proportion of middle ear involvement varies greatly. The septic type of scarlet fever characterized by a profuse nasal discharge and marked anginose symptoms is almost always complicated with otitis media. When the trouble with the middle ear appears early in the course of an attack of scarlet fever of a severe type the temperature does not seem to be specially influenced. An attack of otitis media occurring late in the course of scarlet fever or during the convalescent stage is always accompanied by a sharp rise in temperature and severe pain in the ear. In very young children persistent crying without apparent cause and a constant movement of the head to the ear are indications of a commencing otitis media. At the South Department, of 50 cases of middle ear disease the days on which the discharge commenced were as follows: Three on the fourth day; seven on the fifth day; eight on the seventh day; eight on the ninth day; three on the eleventh day;

<sup>2</sup> Downie. Diseases of Infancy and Childhood. Holt, 1897.

<sup>3</sup> Finlayson. Acute Contagious Diseases. Welch and Schamberg, 1905.

<sup>4</sup> Caiger. Acute Contagious Diseases. Welch and Schamberg, 1905.

<sup>5</sup> Burckhart. Acute Contagious Diseases. Welch and Schamberg, 1905.

four on the thirteenth day; two on the fourteenth day; two on the sixteenth day; two on the nineteenth day; one on the twentieth day; three on the twenty-second day; two on the twenty-third day; one on the thirty-second day; two on the thirty-fifth day; one on the thirty-eighth day; and one on the fortieth day.

Cultures taken from the discharge in a comparatively small proportion of instances showed the presence of the streptococcus pyogenes. The most frequent organisms, however, were the staphylococcus pyogenes aureus and citreus. The micrococcus tetragenus was found in a very small number of cases. The pneumococcus of Fränkel was occasionally found. No prognosis so far as subsequent mastoiditis is concerned can be made, based on the bacteriological findings in otitis media occurring in the course of scarlet fever.

Mastoiditis in scarlet fever is sometimes, although rarely, subsequent to otitis media. Of 5000 cases of scarlet fever at the South Department there was inflammation of the mastoid cells in about .08 of one per cent. An early operation was advised in each case and the results were satisfactory; no deaths having occurred from the operation. In some instances where there was no distinct mastoid tenderness, but a slight unexplained rise in temperature and a profuse aural discharge, opening of the mastoid cells was earnestly advised. In very case where the operation was performed, where the conditions were such as has just been described, the cessation of the discharge and the improvement in the condition of the patient was very marked.

Some physicians have been inclined to postpone operative interference in mastoiditis in scarlet fever on the ground that there was danger of sepsis, if the operation was performed in a scarlet fever ward. Others have been inclined to postpone operation until the process of desquamation was completed. So far as my experience goes, if there is a profuse discharge from the ear, if there is marked mastoid tenderness, there is no reason for postponing the operation. It has been our experience at the South Department that although the symptoms referable to the mastoid region were somewhat vague and indefinite, if there was a profuse discharge from the ear the condition of the mastoid cells and the adjacent structures was much more serious than would have been expected from the symptoms. In no instance has death been caused by the operation, but in each and every case there has been marked improvement in the condition of the patient immediately after the operation.

As illustrating the condition of the mastoid cells and adjacent structures in scarlet fever the history of the following case is of interest. X. Y. a girl seventeen years of age was admitted to the South Department on May 28, 1904, in the desquamative stage of scarlet fever. There was a profuse, foul, greenish discharge from the right ear. The posterior and superior wall of the meatus was swollen. The membrana tympani was reddened and bulging, and had a pin-head perforation in the posterior inferior quadrant. There was a slight amount of tenderness over the mastoid. Incision of the drum-head was immediately done. The condition of the left ear was as follows: a profuse, foul, greenish discharge; posterior and superior walls of the drum membrane were bulging; large perforation in the posterior inferior quadrant; redness and edema extending nearly to the clavicle; the mastoid region was exquisitely tender to the touch; the patient complained of pain, and there was marked hebetude. There were no symptoms referable either to the eye or to the brain. The temperature was  $101^{\circ}$ . The mastoid operation was performed by Dr. Charles R. C. Borden, Assistant Aural Surgeon, Boston City Hospital. The first incision caused the evacuation of several ounces of pus from the soft tissues. The cortex was perforated and very thin; the cavity filled with pus and granulations; the entire tip of the mastoid was necrosed allowing the finger to be passed into the softened tissues of the neck through the mastoid. Granulations were present everywhere. The dura was exposed, but the sinus was enclosed in hard bone on this side. Her condition improved immediately after the operation, and the temperature fell to the normal point in twenty-four hours. Five days later the temperature became elevated and as there had been a profuse discharge, as already stated, from the right ear although there was no great amount of mastoid tenderness, an operation was advised with a view of saving the hearing. This was performed by Dr. Borden. The first incision through the skin also cut through the cortex, it was so soft. The condition of the tissues was similar to those described in the left ear, except that the necrosis of bone was more extensive. The lateral sinus was exposed for a considerable distance. The tegmen tympani was opened and the dura exposed. The temperature fell immediately after the operation and remained normal. The wound healed rapidly. The patient made a good recovery and was discharged well with a fair amount of hearing. This case is of interest as illustrating the fact that in mastoiditis there may be very severe symptoms with great destruction of tissue as evidenced by the condition of the left mastoid.

region of this patient, and on the other hand there may be an extremely serious condition without very marked symptoms as shown by the condition of the right mastoid region in this case.

In cultures from the mastoid cells the usual pus cocci, the streptococcus pyogenes, the pneumococcus, the micrococcus tetragenus and in two instances a bacillus morphologically similar to the bacillus of diphtheria, but with a different life history were found. These different organisms were of no significance so far as prognosis is concerned, as all the patients did well; those in whom streptococci were found as well as those in whom pneumococci were detected. This experience is somewhat at variance with that of others as some observers have laid considerable stress upon the presence of pneumococci, so far as an unfavorable result is concerned.

The result of our experience at the South Department has been that the proportion of middle ear trouble and subsequent mastoiditis is more frequent during an attack of measles than during an attack of scarlet fever. Downie of 501 cases of inflammation of the middle ear treated in the Children's Hospital in Glasgow gives the percentage of middle ear involvement following measles as 26.1. At the South Department the percentage of otitis media of greater or less severity in 1000 cases of measles was 24. In the mixed cases of scarlet fever and diphtheria the percentage was somewhat higher. Mastoiditis occurred also more frequently in measles than in scarlet fever.

The benefits of early operation in mastoiditis are as great in measles as in scarlet fever. The history of the following case is an apt illustration of this statement: F. L., a man twenty-eight years of age was admitted to the South Department on April 5, 1904, with a moderately severe attack of measles. On the 11th he complained of some pain in his ear. Examination showed a large bleb on the posterior half of the drum. Incision of the drum-head was done with relief to the pain. There was no tenderness over the region of the mastoid, but there was a very profuse discharge from the ear. Up to the 25th of the month the discharge increased in quantity to a very considerable extent. There was no marked rise in temperature; at no time was there mastoid tenderness. In view of the fact that the discharge was so profuse and in order to save the man's hearing, mastoid operation was strenuously insisted upon, notwithstanding the objection of the patient. On the 25th, the mastoid cells were opened by Dr. Borden. After making the incision in the skin and pushing back the periosteum, thin greenish-yellow pus was seen exuding through the cortex which was very

thin and easily removed. The entire mastoid cavity was filled with thin pus and soft granulations. These being curetted there was found to be a perforation of the mastoid tip. The lateral sinus was exposed for half an inch. The tegmen was not opened. All granulations and necrotic bone was curetted leaving a mere shell of the mastoid. The wound was not closed but was packed with iodoform gauze in the usual manner. At the time of the first dressing four days later, the gauze wick in the canal was not even stained. From this time until the wound healed there was no discharge. When the patient was seen in May, 1905, the membrana tympani had entirely healed. The entire membrane was thin and glistening in appearance; was freely movable; there was no scar tissue to be seen. The hearing was good although not quite up to the normal standard.

In the treatment of the acute infectious diseases the importance of frequent examinations of the ears is paramount. Statistics show very conclusively that deaf-mutism is very frequently caused by some of the acute infectious diseases. Partial deafness is also caused to a very considerable extent. Early incision of the drum-head as soon as there is any bulging of the drum-head should be the routine practice. If this course was pursued in every case of diphtheria, scarlet fever and measles, deafness would not be as common as it is at the present time. It is beyond the scope of this paper to give explicit directions regarding the operation; this is the province of the aurist rather than that of the general practitioner.

The points that I wish to emphasize in this paper are:

*First;* the frequency of otitis media in diphtheria, scarlet fever and measles.

*Second;* the importance of early operation in mastoiditis occurring in these diseases.

*Third;* the necessity of frequent examination of the ears when there are no symptoms referable to these organs.

*Fourth;* early incision of the drum-head in the acute infectious diseases.

745 Massachusetts Ave.

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## CYSTS IN LYMPHOID TISSUE, AN EXCEPTIONAL MANIFESTATION OF TONSILLAR RETROGRESSION.\*

BY JONATHAN WRIGHT, M.D., NEW YORK.

In various papers I have had occasion to refer to the phases presented by the retrograde metamorphosis of hypertrophies of the lymphoid tissues of the nose and throat. In spite of its pathological features this is to be regarded as essentially a physiological process, a process of adaptation of the organism to changing conditions. The change is from adolescence to maturity and old age, from a period of constructive metabolism through the equilibrium of maturity to the crumbling metabolism of age. This is a formula, not to be applied strictly to the individual, but more properly to the tissues, for these changes in the tissues only keep step in a general way, varying greatly in different persons, to the number of years registered by the individual. In the vast majority of individuals however the changes are fairly uniform with age. This retrograde change, as to the tonsillar epithelium finds expression in the pathological condition known as Keratosis, as to the stroma in fibrosis, as to the bloodvessels in the thickening of their coats and the obliteration of their lumina. I have pointed out<sup>1</sup> how this change in the epithelium and in the stroma produces the gross and minute histological appearances, which have been wrongly called papilloma of the tonsils, supernumerary tonsils, etc. The growth of fibrous tissue in the stroma and in the bloodvessel walls is the process by which the lymph spaces are closed to the wanderings of the leucocytes in their various forms. Thus we have regularly a diminution in the bulk of the hypertrophies, and sometimes larger or smaller bits of tonsillar tissue are crumbled off the surface and from the crypts. This which I have ventured to call "Autoclasis" of the tonsils and which I have regarded as an auxilliary process of retrogression, is not, I believe, such an exceptional process as it may at first sight appear to other observers.

Some recent observations have served to convince me that there are other rarer manifestations of this retrograde metamorphosis which have not been noted in the pathology of the tonsils. Incidentally I may remark that I regard the occasional presence of bone and cartilage in the faucial tonsil as also an exceptional expression of

\* From the Laboratory of the Manhattan Eye, Ear and Throat Hospital.

1 THE LARYNGOSCOPE, April, 1904.

this retrogression. There is no doubt in my mind that this is the continuation beyond the usual limits of fibrous metaplasia. It is analogous genetically to the senile changes observed in numerous localities during the degenerations of age.

The object of this paper however is to suggest an explanation for a rare pathological condition of the lymphoid tissue itself.

In several contributions\* dealing with cyst formation in the nose and throat I have reported cyst cavities within the lymphoid tissue itself. I was inclined, for the want of a better explanation, to ascribe their formation to the dilatation of the lymph spaces. I have in mind only the two cases referred to above, but I am fairly confident that I have observed the condition much more frequently than this would indicate. At any rate the recent observation of another case, revealing this time what was not noted before, the presence of a large amount of oily substance flowing from the seat of operation in the removal of lymphoid tissue from the patients naso-pharynx, gave a clue to the genesis of the cyst which I had not had before. This extraordinary clinical manifestation had not been noted in other cases, I suppose, because of the small size of the cyst from which the fluid came. There was no cavity to be observed in the shreds of tissue removed which could have harboured the quantity of fluid which flowed from the mouth of the patient. She was a healthy woman twenty-one years old, with nothing exceptional in her history of her symptoms. The amount of fluid could not be estimated owing to its mixture with the usual pharyngeal and buccal secretions. It was enough, however, to give such a decided oily character to the discharge of more than a tablespoonful in all that it aroused curiosity as to its origin, which at the time of operation was entirely inexplicable. The tissue in situ did not differ materially in appearance from the usual. Sections for the microscope did not reveal the large cavity from which the fluid came. That had been ruptured and the cavity having no true walls could not be recognized, but several smaller cavities containing traces of fat cells were seen, one of which I have had drawn in the accompanying figure, under moderate magnification. Under a higher power (1-12 oil im.) study of the leucocytes along the edge of the walls, discloses some of them in the process of disintegration. Free nuclei, occasionally segmented into four, may be seen along the free edge of the cavity, the cytoplasm having apparently been liquefied, leaving behind the more resistant karyoplasm, which under the stimulus of changing conditions has begun an abortive attempt at proliferation.

\* *Am. Journ. Med. Sc.*, Phila., June, 1903.  
*N. Y. Med. Journ.*, Dec. 7, 1895.

There can, therefore, be no doubt of the nature of the cysts, in this particular case at least, nor of their genesis. It is fair also to assume that this was the structure and genesis of the other cases I had observed. Clinically, as I have said, the fluid escaping was not noticed on account of the smaller size and microscopically the outline of fat cells in the other cases had been lost in the granular contents of the cavity, having been broken up by degeneration, or having become granular in the course of hardening. The question naturally arises; may not a certain amount of this fatty degeneration go forward constantly in the retrogression of the lymphoid tissue? Not enough to make cavities at certain localities, but enough to lead to the slow subsidence of adenoids and tonsils?

Personally I think this is improbable, owing to the fact that out of the many hundred perhaps thousand slides of preparation of such tissue which I have examined in the last ten years or so, I have noted no indication of it. Nevertheless it is very possible that with proper hardening and staining for that purpose the process might be revealed as one of more frequency and importance than supposed.

As it was, this pathological phenomenon, at first simply attracting attention from its novelty, now falls into line in my mind as a further manifestation of the well known laws of growth and decay of tissue to meet the changing exigencies of the organism, of which it is a part, subordinated to the life processes of the whole.

103 Park Ave.

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**An Unexplained Case of Sudden Death.—VICTOR LANGE.—*Monats-schr. f. Ohrenh.*, Berlin, February, 1905.**

A boy, 4 years old, was tracheotomized for diphtheria. The removal of the tube was followed by dyspnoea, on account of excessive granulations. After repeated curettings the removal of the tube was finally accomplished, the boy suffering only from slight dyspnoea on exertion. One week after the removal of the tube he came under the observation of the author, who attempted to make a laryngoscopic examination, to which the child made no resistance. As soon as the mirror was introduced into the child's throat, he was seized with an attack of laryngeal spasm, in which he died. No autopsy was made.

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## TWO CASES OF SUCCESSFUL OBLITERATION OF THE FRONTAL SINUS AFTER REPEATED OPERATIONS.\*

BY H. HOLBROOK CURTIS, M.D., NEW YORK.

The two cases which I present, illustrate the importance of total obliteration of the frontal sinus, as the only sure method of guarding against recurrence of the suppuration from reinfection.

*Case I.* The first case was referred by his physician in a western city, to Dr. Charles McBurney, and by him sent to me for a radical frontal sinus and antrum operation. The letter giving an interesting history of the case by his own physician reads as follows:

*"Dear Doctor.—About five years ago Mr. B. had the Grip, at which time he had some swelling and puffiness under the right eye over the right maxillary antrum. There was pain over both antra. Some time after that, both antra were drilled into after the removal of the second molar tooth on each side. Pus was found in each antrum. These were douched. Within two months the left one recovered and the discharge stopped; two years later the left antrum was again drilled into and pus found. In the right one the discharge ran along a year and finally stopped. At intervals of from six months to a year the right antrum was again drilled into, up to November, 1901, when the present opening was made in the incisive fossa. All this time there was a great deal of pain. The pain was located under the right orbit, over the frontal sinus and at the top of the head. The pain in the top of the head extended to the occipital region. The pain has always been worse in damp weather, and preceding a storm. After a day of unusual mental effort the pain is increased.*

*"Mr. B. is very susceptible to pain, although he has great powers of resistance. For a number of years he suffered intensely from sick headaches at intervals of perhaps two weeks, which were sufficient to put him in bed. For a great many years he has had nightmare; he holloas, and runs about in his sleep, and, to one who does not know him, it is quite alarming.*

*"Mr. B. came under my care on the 22nd of February, 1902, at which time he had the present opening in the right maxillary antrum, which was excreting from a teaspoonful to two teaspoonsful of*

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pus in twenty-four hours. The left antrum was also excreting pus in smaller quantities. He was suffering very much from pain under the right orbit, under the left orbit, in the frontal region extending across the brow, and in the top of the head and occipital region. The condition of both antra had been properly diagnosed. In probing the right antrum, an opening was found at the upper, inner and anterior portion of the antrum, through which a probe passed into what was at first thought to be the anterior ethmoidal cells. Afterwards it was determined that this probe passed into the frontal sinus. An X-Ray examination revealed this fact, as well as the presence of the point of the probe in the frontal sinus when the operation of opening it was made. Trans-illumination never showed the frontal sinuses dark. The character and location of the pain led me to believe that more than the antrum was involved. To confirm this, the anterior half of the middle turbinate was removed April 8, 1902. The anterior ethmoidal cells were found to be diseased, and pus came from them after the removal of the middle turbinate. No pus was found in the nose at any time prior to this, to help locate the disease. The anterior ethmoidal cells were curetted and an unsuccessful effort made at this time to wash out the frontal sinus through the nose. September 22, 1902, the frontal sinus was opened at the point indicated by the present wound. The opening made into the bone was about three-eighths of an inch in diameter. The frontal sinus was found to be filled with granulation tissue which was very dark and bled easily. An effort was made to curette the whole frontal sinus on the right side. The opening into the nose from the frontal sinus was made free and large so that there was free access between the sinus and nose. We irrigated the frontal sinus and the antrum at intervals of from 24 to 72 hours, using sterile water, or sterile water containing boric acid, or Borolyptol, or Formaseptol, or equal parts of bi-carbonate of soda, bi-borate of soda, and chlorate of soda. The odor of the discharge at first was quite offensive. Recently the discharge has almost subsided, and there has been very little or no odor. By reason of the continuance of the pain, the posterior half of the middle turbinate was removed from the right nostril about February 1, 1903, and some of the posterior ethmoidal cells were broken down and more of the floor of the anterior ethmoidal cells was cut away. Pus was found in the posterior ethmoidal cells. The sphenoidal cell has been probed a number of times at intervals extending over the observation of this case, without at any time finding any evidence of involvement of the sphenoidal sinus.

"The left antrum was irrigated through a puncture in the nose and has not discharged any for the past six months, although the pain over the left antrum has been as severe at times since then as at any time when it contained pus.

"Not more than five or six drops of pus have been washed out of the frontal sinus and right antrum at any recent washing. In spite of this fact the pain has not diminished at all. If there is any difference in the degree of pain, it seems that it has been worse for the past five weeks. Recently the frontal sinus has been irrigated through the nose.

"As a boy Mr. B. had a periodic internal strabismus in which the left eye was the offender. He has an esophoria and a compound hypermetropic astigmatism in each eye. Repeated ophthalmoscopic examinations have shown normal fundi.

"Recently there has been considerable pain in each ear which has seemed to be in excess of that which would be expected from the local disturbance in the ears themselves.

"The question now confronting us is: What is still producing the pain? Is it due to pus still retained in some cell or cells that have not been opened? Is it due to the inflammation that is still present, though not sufficient to cause pus? Or, is it due to the presence of the plugs which evidently produce more or less irritation to the branches of the fifth nerve?

Yours truly,

M. D."

When the patient came to me he was wearing a gutta percha obturator in his right canine fossa perforation and a similar contrivance through the inferior wall of his right frontal sinus, to keep the wound open for the purpose of douching. The latter plug he had worn for several months. His right antrum was discharging pus as was also his frontal sinus; the antrum was causing much pain, but the discharge was not appreciable in the middle meatus. Most agonizing and constant pain was a marked characteristic of this case throughout. The right eye-lid was indurated and inflamed from the obturator. There seemed every indication for a Killian operation upon the right sinus, but the condition of his eye-lid and the inferior wall was such that I did not see my way clear to making a flap which would be satisfactory. I determined however to attempt to save the superciliary ridge to prevent deformity and though the bone was very necrosed below the ridge I elected to enter the anterior wall. The patient was anaesthetized by Dr. Denton and I operated as follows: The incision was from the root

of the nose on a line above the eyebrow, rather higher than usual as you see by the photograph, having previously ascertained that the sinus was a very large one and extended three quarters of an inch above the ridge. The sinus walls were found luxuriant in granulation tissue of most unhealthy type, with necrosis of the anterior wall and almost complete destruction of the inferior plate. I cleansed the sinus and curetted the anterior wall in the supra orbital portion, which I preserved as a thin bridge. I then dissected out the old wound in the inferior tissues beneath the ridge and removed the entire inferior wall. The next step was the breaking down of the posterior ethmoid cells which were badly diseased, clearing out the anterior cells as well. Having done this work most thoroughly, I decided to attempt to obliterate the sinus by packing. The con-



dition of the soft tissues in the orbital region was such that it was impossible to attempt to close the old wound so I left both incisions open and after careful washings with peroxide, packed the entire cavity with iodoform gauze. After a week I succeeded in closing the inferior wound and obtained a primary healing. For eight weeks I carefully packed the sinus with iodoform wool which I have previously described, using this after the first dressing of gauze. This I consider the very best dressing for exciting granulations. Little by little the granulations approached and tended to close the nasal orifice; the moment this was accomplished the sinus filled up with great rapidity and the frontal wound was closed after slight paring of its edges at the tenth week. The point I wish to make is this: Obliteration of the sinus is the objective point to be attained

in frontal sinus work, and if patience and discretion is used in packing, this object may be accomplished even in very large cavities with extensive ethmoidal complications. I will not detail the operations on the antra and the sphenoid sinus in this case, which were performed after the dread of reinfection was removed by obliteration of the frontal sinus. Suffice it to say that an individual to whom life had become unendurable, has been relieved of his suffering and is able to comfortably carry on the arduous duties of Secretary of an important financial institution in the west. I will say that the photograph is taken to show the cicatrix and that the scar on the individual is not as prominent as it appears to be in the picture.

*Case II.* I wish to cite a case which, like the last, has been through many hands, and failures always took place from the fact that the sinus as well as the antrum regularly became reinfected. A description of the case by a colleague in Philadelphia, may be of interest:

"Mrs K. has had empyema of the right frontal sinus and of the right antrum of Highmore for one year at least, though there is a history of neuralgia dating back 3 years.

In December, 1895, shortly after she first consulted me, I removed  $\frac{1}{2}$  drachm of thick muco-pus from the right maxillary sinus. While the antrum steadily improved under frequent irrigations through the ostium maxillaris, the frontal inflammation got steadily worse.

Numerous small polypi were removed from about the naso-frontal duct, but at no time was any pus seen there.

Trans-illumination of antrum was positive, of frontal, negative.

Frequent attacks of inflammation of the frontal sinus, causing marked oedema over that cavity, occurred with extreme pain at the time, but the severity lasted only a day or two. These attacks becoming worse and more frequent, the frontal sinus and antrum were opened under ether. The frontal cavity was filled with small polypi or granulations and some thick pus, the antrum contained thick muco-pus. The floor of the frontal sinus was broken through into the nose and a rubber drainage tube passed through and out at the nostril. Both antrum and frontal sinus were packed with iodoform gauze, the former daily for over 4 weeks.

The drainage tube was removed on the 10th day and a horse-hair drain substituted for a couple of days longer.

At the time of operation, I endeavored to pass a filiform bougie through the naso-frontal duct, but it was either markedly stenosed or entirely obliterated.

With a delicate curved probe one can now enter the cavity through the new opening which is beneath the extreme anterior end of the middle turbinate.

When the flow from these cavities was obstructed, before the operation, Mrs. K. had very severe neuralgia of the right side of the neck and in the right ear. There was seldom complaint of pain over the antrum, and over the frontal only during the attacks, which occurred several times a week at first but later once a month. When less frequent, the pain was severer.

The tooth is not the cause of the difficulty. It has been repeatedly examined by skilled dentists, a mirror even being used inside the cavity to view it."

—M. D."

This letter was written in 1895 and the patient continued the victim of pain and discharge until 1903 when, in December of that year, she was referred to me by Dr. Kinnicutt. I operated on the frontal sinus by entering and removing the anterior wall above the orbital ridge, except at the nasal portion where I was obliged to remove part of the ridge itself to obtain better access to the posterior cells.

As this case had been previously twice operated upon through the inferior wall, I was obliged to remove a greater portion of this wall during the operation but preserved the integrity of the soft tissues.

Here, as in the previous case, I made a very free opening into the nose and packed for some weeks with iodoform wool until the sinus was obliterated. I then did a slight plastic operation to remove the edges of the cicatrix. The photograph shows the scar to be scarcely visible.

In three weeks I operated on the antrum through the canine fossa, making a very free opening through the inferior meatus for packing. The wearing of obturators through the alveolar puncture which had gone on for years in this case made it necessary to remove much of the floor of the antrum, but I succeeded finally in closing a large buccal orifice and carried out my treatment through the nose until an absolute cure was effected. The patient wrote me a month since that for eighteen months she has had no pain and no discharge from the sinus or antrum.

The questions of interest which have suggested themselves to me as the result of these and like cases, are these:

*1st.* Is it ever expedient to attempt to incorporate the anterior sinus wall in a skin flap, after removal of the inferior wall, for the purpose of obliteration?

*2nd.* Provided thorough asepsis is carried out, the obliteration of the sinus always becomes possible. How often then are we justified in closing our superficial wound until we are sure that we have secured this end?

*3rd.* Even with a Killian bone incision, may we not get better results by packing from above and keeping our flesh wound open until we are satisfied with the appearance of the nasal cavity as viewed from above?

*4th.* In operating on the frontal sinus, should not the integrity of the inferior wall be preserved if possible, for two reasons? *1st.*



The pulley of the superior oblique muscle should not be interfered with, and *2nd.* The venous return, through the angular and ophthalmic veins into the cavernous sinus should not be unnecessarily exposed to infection.

It has been my observation that cases of fatal termination have been those in which the inferior wall near the nasal junction has been attacked and the infection carried to the cerebral sinuses through the above mentioned channels.

These and similar questions have been discussed from many standpoints, I would simply say that in my hands obliteration of the sinus by packing has more than proved the success I predicted for the method, which I advocated in my paper read before this society in 1902.

118 Madison Ave.

## **AN UNUSUAL CASE OF LARYNGEAL SYPHILIS REQUIRING TRACHEOTOMY.\***

BY CLEMENT F. THEISEN, M.D., ALBANY, N. Y.

The following case, because of several rather unusual features, was considered worth putting on record.

Mrs. J., aged 38 years, married, consulted the writer for the relief of a gradually increasing difficulty in breathing. This she had noticed for nearly a year, and on any exertion, like walking up stairs, great dyspnoea always came on.

There was, at the time the patient consulted the writer, a well marked respiratory stridor, and the inspiratory thrill, which is characteristic of laryngeal stenosis, could be felt when the fingers were placed over the region of the larynx. Her first husband contracted syphilis, and also developed a pulmonary tuberculosis, of which he died. The patient's family history, however, is negative in this respect, there having been no cases of tuberculosis so far as known.

The patient herself was inoculated with syphilis by her first husband some years ago, and received a thorough course of treatment. At that time, there were well marked constitutional symptoms, with necrosis of the bone in several of her toes, necessitating some operative work. No symptoms of laryngeal obstruction developed until about a year before the writer was consulted, and since then, as before stated, there had been an increasing difficulty in breathing.

On examination, the nose and naso-pharynx, with the exception of a slight naso-pharyngeal catarrh, were found practically normal. Patient had a slight chronic pharyngitis. The tonsils were not enlarged. The uvula was slightly elongated and thickened, and was infiltrated for about one half its length from the tip. This portion of the uvula was very hard to the touch. There was no ulceration, nor any evidence of former ulceration.

The entire epiglottis was infiltrated, its surface being perfectly smooth however, and it was also extremely firm to the touch. It was pulled back to such an extent, that the laryngeal entrance was practically closed, and the only way a laryngeal examination could be made, was by pulling up the epiglottis after cocaineization. The

\* Read at the Eleventh Annual Meeting of the American Laryngological, Rhinological and Otological Society, Boston, June, 5, 1905.

epiglottis was also free from ulceration. This peculiar position of the epiglottis is probably due to old lateral syphilitic adhesions. There is considerable resistance when the epiglottis is pulled up in making a laryngeal examination. The aryepiglottic ligaments appear thickened and shortened.

On laryngeal examination, a most interesting state of affairs was found. The glottis, with the exception of a very small opening posteriorly, was closed by a mass of cicatricial tissue stretching from side to side, just under the vocal cords. This was found to be extremely dense and unyielding when examined with a probe. Practically no changes in any other part of the larynx could be seen. The movements of the arytenoids were somewhat impaired, the result probably of an old perichondritis.

A careful physical examination of the patient was made by an excellent general practitioner who found her lungs normal. He found a right movable kidney and a digestive disorder, otherwise the patient was found to be in a fair general condition.

The sputum was examined several times with negative results. The patient was told that her laryngeal condition was serious, and consented to remain in the hospital for a time. A piece of the infiltrated epiglottis was removed and sent to the Bender Laboratory for examination. The report stated that the piece removed showed simply a chronic inflammatory process. No tubercle bacilli were found in sections of the removed tissue.

Iodide of Potash was administered, in order to see what effect it would have on the infiltrated uvula and epiglottis. The uvula became decidedly thinner and softer, but no change in the epiglottis could be determined.

The administration of the Iodide however, brought on a sudden attack of laryngeal oedema, with greatly increased dyspnoea, and it was then promptly stopped. Preparations for performing tracheotomy were made, but the oedema subsided so quickly, with proper local measures, that it was not required.

As the patient did not desire any further operations at this time, she was discharged from the hospital, but was kept under constant observation. During the succeeding few months, she got along fairly comfortably, when she did not exert herself in any way, but finally, when attacks of dyspnoea became more frequent, she consented to a tracheotomy.

She was again admitted to the hospital and a low tracheotomy performed. A general anesthetic was not used on account of the great laryngeal obstruction, but the operation was performed with

a solution consisting of equal parts of a  $\frac{1}{2}$  per cent cocaine and a 1-10,000 adrenalin chloride solution, making a solution of  $\frac{1}{4}$  per cent cocaine, and 1-20,000 adrenalin.

In a discussion upon the fatal results of operations upon the nose and throat, (in the transaction of the American Laryngological Association for 1904<sup>3</sup>.) I called attention to the value of this solution in performing tracheotomies. It should be put up under aseptic precautions, preferably the day of the operation, and the bottle kept under a 1-1,000 solution of bichloride, until the solution is drawn into a sterile hypodermic syringe after the patient's neck is prepared for the incision. It is only necessary to inject a few minims at different points along the line of incision. It is an ideal solution for tracheotomies in adults. I mean of course in cases in which the patient is in no immediate danger of death, so that the operator can take his time.

The use of a general anesthetic in cases where there is some form of laryngeal obstruction,—and that is usually the condition for which a tracheotomy is performed,—is not safe. In emergency cases, where the patient is in imminent danger of death, the operator would of course not lose time in using *any* anesthetic at all, either general or local, nor could a local anesthetic of this kind, be used, in performing tracheotomies upon children or very nervous adults. It should be only used in selected cases. The addition of even such a weak solution of adrenalin chloride to the cocaine solution, has distinct advantages, as it assists in preventing the possible unfavorable effects of the hypodermic injection of cocaine.

The writer's patient complained of very little pain during the operation, and it certainly adds very materially to the comfort of the operator, if he is able to take his time in performing a tracheotomy.

The further history of this case, is of no great interest perhaps, except that the gain in the patient's general condition has been quite remarkable.

At the time of the operation she was much reduced, and since then she has gained over thirty pounds in weight. She is still wearing the tracheotomy tube, and will probably continue to do so for some time. She has been told that a radical operation, consisting of a thyrotomy, with a careful removal of the cicatrical tissue, followed by intubation, might relieve the breathing to such an extent, that she would be able to permanently discard the tube. Up to the present time, however, I have not been able to get her consent, as she is so well satisfied with her condition. There is

no way of dilating this stricture from above, as the cicatricial tissue is so absolutely unyielding.

The question as to just what to do in such severe cases is an interesting one. We must always be prepared to perform tracheotomy, and must bear in mind a statement of Simpson's "that all cases of laryngeal or tracheal stenosis however gradual, may at any moment take on a sudden exacerbation." The proper method of getting rid of the laryngeal stenosis after tracheotomy, is of great importance.

J. Payson Clark<sup>2</sup> has reported an interesting case of probable syphilitic stenosis of the larynx, in a young adult, on whom a tracheotomy had been performed for increasing dyspnoea. Dr. Clark was unable to pass intubation tubes, so while the patient was under ether, the tracheotomy tube was removed, and gradually larger sizes of female urethral sounds were passed through the tracheal opening and up into the larynx. A pair of long narrow slightly curved forceps was then passed up through the tracheal opening and through the glottis. The intubation tube was put on the forceps, which was then pulled back through the tracheal opening until the intubation tube was properly adjusted. The patient however unfortunately coughed out the tube, and as he would not consent to have it reinserted the tracheotomy tube had to be put back, when he left the hospital. This method would probably not be applicable to cases of syphilitic stenosis, in which, as in the writer's case, the cicatricial tissue practically occludes the glottis, and is so dense. The patency of the glottis would first have to be restored by removing this tissue by a laryngo-fissure, after which this method would undoubtedly be very useful.

In cases of simple syphilitic stenosis of the larynx, caused by infiltration and thickening of the cords and ventricular bands, or perichondritis with oedema of the mucous membrane, intubation with gradually larger tubes, preceded in all severe cases by a tracheotomy, is, I believe, the best treatment.

The writer has had several cases of this sort, on one of which the stenosis was in the trachea, well below the glottis, and could be finally dilated with Schrötter's tubes.

A preliminary tracheotomy in severe cases of syphilitic stenosis of the larynx should be performed perhaps in the majority of the cases. Then the operator can work from above, without the danger of an attack of sudden oedema, and asphyxiation of the patient.

There are many cases of syphilitic stenosis of the larynx on record, in which tracheotomies had to be performed for increasing

or sudden alarming dyspnoea. I will not take your time in considering them in detail.

Such cases have been reported by, Jeanne<sup>6</sup>, Leonard<sup>7</sup>, Navratil<sup>8</sup>, Descos<sup>10</sup>, Stein<sup>10</sup>, Hall<sup>10</sup>, Clark<sup>2</sup>, Woods<sup>18</sup>, Spencer<sup>8</sup> and others. In the cases reported by these authors, the stenosis was caused by infiltration and thickening of the vocal cords, and ventricular bands, and not by cicatricial tissue stretching between the cords.

In a fairly careful search of the literature of the past ten years, not many cases were found, in which the stenosis was produced by cicatricial tissue occluding the glottis by uniting the cords, or extending across the trachea.

Cases of this kind have been reported by Bleyer<sup>17</sup>, Moritz<sup>21</sup>, Collinet<sup>13</sup>, Echtermeyer<sup>14</sup>, Heymann<sup>5</sup> and Hubbard<sup>12</sup>. In Hubbard's case the diagnosis of syphilis was not absolutely positive. I was only able to find a few reports of cases in which the peculiar position of the epiglottis, closing the laryngeal entrance was present.

Navratil<sup>15</sup> and Zwillenger<sup>11</sup> have reported such cases.

Bleyer<sup>17</sup> has reported eight cases of syphilitic stenosis of the larynx caused by a web formation. They were operated on by his combined method of tubage and the knife. He first cut through the membranous formation with Lenox Brown's sharp dilator, and then quickly dilated with intubation tubes.

In Hall's case of syphilitic stenosis, a tracheotomy had to be performed, and the patient died after coughing out the tube.

In Moritz' case, there were adhesions uniting the cords, in a young woman, aged 24 years. A tracheotomy was performed.

Collinet has reported a case of syphilitic stenosis of the larynx, in which cicatricial tissue took the place of the cords and ventricular bands.

In Echtermeyer's case, there was a membrane uniting the cords and almost closing the glottis. A tracheotomy was performed, after which the membrane was removed, and intubation practiced until the patency of the larynx was restored.

In a case reported by Spencer, the stenosis was caused by the presence of firm irregular masses of tissue, which covered the vocal cords and ventricular bands. This was removed by thyrotomy.

In Descos' case, a tracheotomy was performed for extreme dyspnoea, and later a laryngo-fissure was made, and the soft parts of the larynx resected. There were no adhesions in this case.

Navratil<sup>15</sup> has reported two cases, in which tracheotomy had to be performed for laryngeal stenosis caused by syphilis.

Heymann<sup>5</sup> has reported a number of cases in which membranous adhesions existed in the larynx. He does not give the exact number of cases.

In a case recorded by Sargnon<sup>4</sup>, daily intubation had to be performed before the stricture was permanently dilated.

Navratil<sup>20</sup> and Zwillinger<sup>11</sup> have reported cases in which the epiglottis was pulled back, (as in the writers case), to such an extent, that the laryngeal entrance was closed.

In Zwillinger's case, there were adhesions between the epiglottis and aryepiglottic folds. In Hubbard's case<sup>12</sup> a thyrotomy was performed and the membrane uniting the cords removed.

#### CONCLUSIONS..

a. Intubation is particularly useful in the cases in which the stenosis is not extreme, and when it is caused by a thickening and infiltration of the cords and ventricular bands, thus narrowing the glottis.

In some such cases, intubation may be carefully used without perhaps preliminary tracheotomy.

b. When the stenosis is extreme, or when membranous adhesions exist between the cords, leaving only a very small opening, a tracheotomy should precede attempts to dilate the stricture from above. It is in such cases that a sudden oedema may be fatal before an intubation tube could be properly adjusted.

c. Tracheotomy, followed by laryngo-fissure, offers the best chances of a permanent cure, when there is much cicatricial tissue occluding the glottis by uniting the cords.

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**Two Cases of Abnormal Mobility of the Tongue—M. DELSAUX.—**  
*Rev. Hebd. de Laryngol. d'Otol. et de Rhinol.*, July 23, 1904.

On account of the rarity with which such cases are met, Delsaux, of Brussels, reports two cases which presented abnormality in the mobility of the tongue. These patients could pass the point of the tongue above the velum palati into the naso-pharyngeal space. The motion of the tongue forward was also more than usual. He finds only six such cases reported in medical literature.

(Probably such cases are not as rare as Delsaux seems to believe, because the majority of them are not recorded. The reporter knows of two similar cases in which the patient could pass the tongue into the naso-pharynx. One of them relieved himself from the annoyance of a chronic naso-pharyngitis in this manner. Scheppegrell.)

SCHEPPEGRELL.

## HEMORRHAGE IN NOSE AND THROAT OPERATIONS.\*

BY EMIL MAYER, M.D., NEW YORK.

To those of us who are called upon to operate in the various affections of the nose and throat, the question of hemorrhage is by no means the least important one. Obscuring as it does the field of operation, rendering subsequent procedures much more difficult, often placing the patient in a position of extreme danger as to life, and thus making recovery tedious, we surely may well take the time from some of the more abstruse questions that constantly confront us, and give our attention to the question of hemorrhage and its avoidance.

Since the days of our knowledge of the efficiency of the Suprarenal extract and its infinitely superior successor, Adrenalin, for which we have to thank the ingenious chemist, Dr. Jokichi Takamine, much of our work, especially in nose operations, has become much easier of accomplishment. The loss of blood, which formerly amounted to ounces, is brought down to such a minimum that there is practically none at all.

The great advantage in being able to complete the operation at one sitting is by no means a slight one, and in this connection it is but fair to state that the preparation known as Adrenalin has never failed me in producing the effect desired. In one instance, there was a most copious hemorrhage during operation and upon subsequent investigation, it was ascertained that the preparation given me was one of the preparations of the suprarenal extracts, which is on the market under some other name.

In operations in the pharynx and naso-pharynx, the use of the Suprarenal extract is inadvisable, for the reason that we may readily fear a secondary hemorrhage when there is no loss of blood at the time of operating. The action of these remedies being to contract the blood-vessels, for the time being, to render the parts ischemic, it is perfectly natural that there must be a period of dilatation before the final contraction that forms the clot. This period of open blood-vessels, before subsequent contraction, may well be guarded against in the nose, not so however in the pharynx and naso-pharynx. In the latter preventive measures as regards hemorrhage are few.

\* Read at the Tenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, at Buffalo, N. Y., September 15, 1905.

Fortunately the lymphoid tissue in the naso-pharynx and pharynx is not traversed by large vessels and the tissue itself is soft, and easily removed. It is not customary therefore to take any special measures toward the prevention of the loss of blood at the time of operation for this condition in young children; and perhaps the only precautionary measure and one too often overlooked, is the inquiry into the question of the family history, as regards those known as hemophiliacs.

An interesting case, well illustrating this phase of the subject occurred in my own practice. A boy aged 12 was brought to me by his mother, on the advice of the family physician, to have his tonsils removed. The tonsils were very large, and the boy had all the symptoms associated with that condition, including recurrent attacks of Follicular Tonsillitis. The mother asked me if there was no other way to treat her son except by the knife, and stated that she was very much afraid of any cutting operation, because she had a brother who had bled for days and days upon the extraction of a tooth, and that her own mother bled for a long time upon the infliction of the slightest kind of a wound. I promptly informed her that I would not attempt any operation on the tonsils of her son with such a family history, but would insist on other methods. By many applications and patiently treating first one tonsil and then the other, alternating, with deep applications of the galvano-cautery, the tonsils were eventually brought down to normal size, without loss of a drop of blood and all his symptoms ceased.

It was perhaps a year later that I met the mother, and she looked so poorly that I hardly recognized her. Her story was that being troubled with hemorrhoids, she consulted a justly famous surgeon, who advised operation. He made light of her fears as to bleeding; and indeed when the operation was completed, he assured her that she had lost very little blood, and that her fears on that score were entirely groundless. Things went on in the usual way until the tenth day, when a most vigorous hemorrhage ensued, and she informs me that the surgeon remained all night at her bedside, and had much difficulty in checking the hemorrhage. Instead of leaving the hospital the next day as she had intended, she was there for many weeks, slowly recovering her strength from her exsanguinated condition. This case, by no means an isolated one, indicates the need for caution as regards bleeders, and that attention should be paid to the statements made by patients and further inquiries instituted as to the family history on that point.

In operating for lymphoid hypertrophies, and tonsils combined, the posterior nares should be cleared out first, as a rule, for if the tonsil be removed first the bleeding is so apt to obscure the field of operation that the lymphoid tissue is but partially removed, the operation being too hastily done, and there is also danger of injuring the soft parts, and the posterior pharyngeal wall. Not only that, but the wounded surface is very apt to bleed much more freely in the tonsillar regions from the manipulations, if the curette is used in the posterior nares subsequently. The ideal method is to remove the tonsils, then some days later, after the subsequent inflammation has entirely subsided, remove the adenoid vegetations. This unfortunately is but rarely done because of the objections on the part of the parents who refuse to allow the child to undergo two operations.

Regarding position during these operations when performed under anesthesia, my own preference is for that known as the Rose position, with the head well extended, or the one proposed by our fellow member Dr. C. R. Holmes of Cincinnati, with the patient lying on the side and the operator seated before the patient. The upright position has its advocates, but I, for my part, do not endorse it.

There is no doubt that the hemorrhage is decidedly less when these operations are done without narcosis, and in practically all instances it is indeed remarkable how promptly bleeding ceases.

Patients who have been operated upon under anesthesia are turned over on their faces, and allowed to drip for a few minutes, and returned to the bed immediately thereafter, and this period of quiet tends more to permit the vessels to contract, sealing up the wounds, than anything else; and hence, if for no other reason, patients who have been operated upon under anesthesia in the posterior nares and pharynx should not be allowed to walk about immediately thereafter. It is for this reason then that operations of this character should never be done in the physician's office or in public clinics, or where there are no facilities for rest and recuperation for at least six hours thereafter. In a large experience in public institutions it has been my invariable rule to insist that all such patients should remain over night at least.

I have found the use of a cold spray of some bland fluid like the Dobell's solution of value both during and after these operations together with the precaution to abstain from solid and hot foods, with the thought of preventing secondary hemorrhage. The use of an astringent gargle if practicable is advised.

For the bleeding, local applications of alum and tannin, in powder, and packing the posterior nares with gauze, constant pressure on the bleeding point of the tonsil by means of the index finger of either hand or by means of specially devised instruments for that purpose, the deep searing of the parts with the galvano-cautery, the tying of the blood-vessels by means of the continuous suture run about the stump of the tonsil, and lastly the tieing of the common carotid, are among the measures that may become necessary from the surgical standpoint. The internal administration of the Sulphide of calcium, the use of gelatine injected, or transfusion of normal salt solution, may also be mentioned in this connection.

Of the so-called bloodless tonsil operations the one with the cold wire snare is the safest. The galvano-cautery being followed by an immense slough, from which a brisk bleeding may readily occur, about the time the slough comes away.

Tonsillotomy in adults is quite a different thing from the same operation in children, the tonsil having become fibrous, and the vessels having lost their contractility. One is much more apt to be on the safe side, in performing any chosen form of operation in persons over sixteen years of age, to remove but one tonsil at a time, with an interval of about a fortnight between the two operations. I have seen a most distressing hemorrhage occur eight days after tonsillotomy, as also after galvano-cautery dissection, both in young men about thirty years of age. I have never had the misfortune to meet anything in the shape of hemorrhage following an operation of this character in a child.

In operations in the larynx, of an endo-laryngeal nature we are accustomed to use the cold snare and cutting forceps, quite freely, and I have failed to find a single recorded case of post operative hemorrhage in the larynx.

In the nose in the vast majority of cases requiring operation, the effect of adrenalin is most marked in rendering operations bloodless. This is especially so in the resection operation, when a few minims of the solution is injected under the mucosa prior to the operation. In the removal of turbinates and nasal polypi, it acts well in most instances.

For the radical operation in the accessory sinuses, entering the canine fossa, curetting the ethmoid, and entering the sphenoid, where the nasal wall of the antrum is removed and also the turbinals, the loss of blood is excessive, nor is this operation devoid of danger due to the possible laceration of the branch of the middle meningeal artery which lies directly in front of the sphenoidal sinus.

In order to avoid the distress accompanying the swallowing of large quantities of blood in the operation, the suggestion has been made to pack the posterior nares thoroughly before operating.

In all operations on the nose it is a cardinal rule with me to pack the nose in every single case, and to leave the packing in situ at least twenty-four hours, preferably forty-eight hours, the packing used being either Iodoform gauze or wool, or a strip of aseptic gauze thoroughly covered with Subnitrate of Bismuth.

To dismiss a patient thus operated with a solution of adrenalin and to use no packing, is to my mind to invite disaster, taking unnecessary risks. The long continued bleaching of the tissues from the adrenalin is also harmful, a slough sometime forming which, from its obstructive effect alone, is as disagreeable as any packing could be, and lasts for many days.

To the patient who objects to the packing of his nose after operation, as possibly rendering him uncomfortable, I am in the habit of stating that while he would be uncomfortable that night, that I would be exceedingly comfortable, for I will have the positive assurance that he will not need to send for me in great haste to control a hemorrhage that might otherwise arise. This argument is always convincing. After removal of the packing, or where no packing was used, it is always well to try to stem the flow of blood, with such measures as are at hand. Chief among these are Peroxide of Hydrogen, the Aceto-tartrate of Aluminum, etc.

I would say then in *résumé*:

That a family history of a tendency to bleed should receive our most serious and earnest consideration.

That Tonsillotomy in any person over seventeen years of age is not the simple operation that it is in the young.

That packing of the nose after operation is a safe guard against post-operative hemorrhage.

That the danger of hemorrhage is decidedly diminished if, in all cases where anesthesia is required, the patient be not permitted to be up and about, but be immediately put to bed and kept there some hours.

25 East 77th Street.

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**THE NON-OPERATIVE TREATMENT OF CHRONIC OTITIS  
MEDIA PURULENTA, WITH SPECIAL REFERENCE  
TO THE USE OF PYOKTANIN.\***

BY GEORGE L. RICHARDS, M.D., FALL RIVER, MASS.

The brilliant results obtained by radical surgery in cases of chronic purulent otitis media since the publication of MacEwen's book and the experience of aurists in general that most of the cases of brain abscess and sinus disease are the result of an old chronic otitis have lead us to believe that nearly every case of chronic discharge of the ear is a slumbering volcano and of constant potential danger to its owner. The result has been that practically every case of chronic discharge of the ear has had the question of a serious radical operation, either removal of the ossicles or of a radical mastoid, considered, provided he has come in contact with an aurist who has had any experience with these operations.

While in no sense advising against such operations when they are urgently indicated, as a glance at my own publications on the subject will easily show; I am nevertheless convinced that there are a large number of cases of chronic otitis where operative interference is not imperatively demanded and where the persistence for a longer or shorter time of milder measures will either achieve entire success or bring about a condition easily under the control of the aurist and of more satisfaction to the patient than a brilliant operation. Especially is this the case if the chronic purulent discharge is not accompanied by marked caries or by constitutional symptoms and if the function of audition is fairly good. Many such patients have very good hearing, bid fair to live out the balance of their days, and insist upon our trying some form of local treatment before they will even consider the question of an operation. When questioned as to the certainty of a cure after an operative procedure, we have to admit that even the radical mastoid operation is not always certain to cure, usually requires a more or less prolonged period of after treatment, and is sometimes followed by recurrence; that even the operation of ossiculectomy now and then makes the hearing worse and may have to be followed by the more radical mastoid operation in order to produce what may be called an absolute cure.

A glance at the literature of otology will show that a great variety of methods of treatment and a host of remedies have been used in

\* Presented before the Annual Meeting of the American Otological Society, Boston, May, 1905.

the endeavor to cure chronic otitis media. The methods of treatment in common use have as their main principle absolute cleanliness, the removal of such offending material as is readily accessible by curette or caustic, and the local application of remedies designed to bring about a healthy condition of the mucosa or periosteum with, as an ultimate result, the drying and healing in by new skin or modified mucous membrane of the diseased area. Four leading text-books give the following as remedies to be used in this condition: alcohol; alcohol with 3% boracic acid; alcohol with 3% resorcin; alcohol with 2% carbolic acid; iodoform; iodoform one part, boric acid four parts; nitrate of silver, the solid stick; nitrate of silver, various solutions; perchloride of iron; chromic acid; the galvano cautery; lysol; cresol; formalin; permanganate of potash; peroxide of hydrogen; oil of turpentine; boracic acid with oil of turpentine; boracic acid alone; carbolic acid; bichloride of mercury; iodol; trichloride of iron; resorcin; ichthyol; calomel; thymol; borax; tincture of iodine; benzoic acid; boro-glycerid; iodoform and oxide of zinc; aseptol; chinolin; dermatol; naphthol; salicylic acid; zinc chloride; europhen; diaphtherin; menthol; mikrocidin; sozoiiodol; alumnol; loretin; nosophen; xeroform; and pyoktanin.

That results have been obtained in certain cases with all of these I have no doubt. Simple cleansing will cure a certain proportion of them. It is, however, to the last named, pyoktanin, that I wish especially to call your attention. Although of the leading text-books which I have examined it is mentioned by Politzer alone, it is a remedy, I think, of more value than is generally conceded to it. It came into use a few years ago and then fell out of use again, largely perhaps on account of its intense penetrating color and to the persistence with which this color remains, or because like nearly all new remedies it failed to fulfill its expectations.

Within the last few months I have been using it more or less, my attention having been especially called to it by Dr. Holbrook Curtis.

The formula is

Pyoktanin blue (Merck) .....	5 j.
Boracic acid .....	5 jx.

I wish at the outset to say with reference to the boracic acid that the result obtained is due to the pyoktanin and not the boracic acid although the boracic acid may be a help, but boracic acid alone will not produce the results which the combination will. This formula may be used either in the dry form as a powder, which is the way in which I have generally used it, insufflated with a powder blower, or on the tip of a piece of gauze or cotton, or a solution of varying

strength may be used with water. It is easy of application through small perforations, especially those in the attic, as sufficient of the powder will adhere to the moistened probe to enable one to reach almost any area, while with a good powder blower such as the DeVilbiss, it is easy to reach the diseased area, provided the perforation is of any size.

"(Pyoktanin is a product of the oxidation of dimethylaniline with the chemical formula  $C_{24}H_{28}N_2Cl$ . It is a violet crystalline powder, non-poisonous, nearly odorless, the solution very diffusible in animal fluids, soluble in 30 parts of boiling, 50 of hot, 75 of cold water. It is an antiseptic, disinfectant and analgesic. The stains may be removed by soap, rubbing well and washing with alcohol. The solution should be kept in dark-colored bottles and used only when recent.

Pyoktanin can be applied undiluted to the tissues and fluids of the living body without injury to either. It does not form insoluble compounds with organic matter as do many of the bactericides, and therefore does not form protective deposits around or over those strata of bacterial colonies which are somewhat removed from the surface. It has been microscopically demonstrated that it penetrates and kills the bacilli themselves, and hence has advantages over the antiseptics usually employed for germicidal purposes.

The word itself means pus-killer and is an arbitrary name given by Professor Stilling of the University of Strasburg, Germany, to a group of substances which he found most efficacious as bactericides. The name is now restricted to the leading member of the group, which has become known as Pyoktanin Blue.)\*\*"

The particular advantages of pyoktanin are;

Firstly, that it can be used either in powder form or mixed with water in varying proportions and can be made to reach almost every part of the diseased area. When used as a powder, I cover the diseased area as thickly as possible and then pack in a piece of gauze or cotton and have this retained for at least two days before removal. In this way, the solution made by the aural discharge in connection with the powder will reach a much larger area and have more therapeutic value than when the gauze is removed as quickly as it becomes saturated. To avoid the annoyance of the color, a piece of cotton is put on the outside of the gauze and this is removed as fast as it shows any sign of being stained, the inner piece being left.

Secondly, its persistence. It has a period of activity lasting for a number of days, and if the powder is put in either on a bit of cotton,

\* Quoted and slightly altered from literature issued by the scientific department of Merck & Company.

No.	Sex.	Age.	Condition Tympanum.	Duration Discharge.	Previous Treatment.	Treatment.	Result.	Remarks.
1	m	32	Large perforation 22 years. Small perforation m. t. muco-purulent discharge. Each with adhesions.	Several years. Stopped once, then started again.	Various cleansing methods without result.	Pyoktanin in so far as known.	Cure, permanent.	Was treated by pyoktanin.
2	m	35	Total destruction of membrane and ossicles. Cholesteatoma. Large perforation L ear.	Several years. Once, then again. Says several months. Probably longer.	Some polypoid tissue removed by another physician.	Pyoktanin three times with gauze drain.	Cure, Case missed.	Was treated by pyoktanin.
3	f	39	R ear, mucopurulent discharge with granulation tissue. Large perforation R ear.	Several years. Prob-ably longer.	Nitrate of silver Pyoktanin with cleansing gauze drain used at varying intervals for three months.	Pyoktanin used four times.	No improvement.	Advised radical operation.
4	f	19	Perforation R ear, 2 years. Adhesions.	Several months.	Varying cleansing measures.	Three applications of pyoktanin in powder form.	Cure which continues.	Recently seen. No recurrence.
5	f	14	Perforation R ear, 2 years. Adhesions.	Unknown.	Pyoktanin used five times.	Pyoktanin used Apparent cure.	Had general tuberculosis and liable to recurrence.	
6	m	22	Perforation ear.	each Several months.	Various cleansing measures.	Pyoktanin powder every other day for six weeks.	Discharge diminished but as considerable.	
7	m	36	Small granulation atic; remnant drum, slight discharge.	Several years.	Unknown.	Pyoktanin powder three times with gauze wick.	Discharge diminished, then did a radical mas-	
8	f	28	Acute attack in old case O. P. C. T. Remnant both drums gone.	Unknown.	Unknown.	Pyoktanin powder.	Cure.	
9	m	11	Remnant both drums with granulation tissue.	Several years.	Syringing.	Curettes; pyoktanin powder; gauze drain.	No improvement. Passed out of observation.	

10	m	23	R ear large per- foration ant; small perfora- tion post. Abundant foul secretion. Foul d.	Unknown.	Pyoktanin pow- der about once a week for six weeks.	I mprovement. Passed out of ob- servation.
11	m	30	Remnant each Many years.	At intervals by me for several years with varying results.	In improvement at intervals for several weeks.	Always declined more than any radical sur- gical procedure. With any proce- dure, ears dry for short periods, but dis- charge would start again.
12	m	61	Old perforation Since 1874, post quadrant L ear. Bezold's mas- toid's in 1874. Old perforation Several years, Syringing. shrawnell's growing worse. membrane; foul discharge; foul discharge.	Unknown. Prob- ably very little.	Pyoktanin used four times.	I mprovement. Passed out of ob- servation.
13	f	36	Old perforation Several years, Syringing. shrawnell's growing worse. membrane; foul discharge; foul discharge.	Pyoktanin powder and solution. Under treatment 31, 1904, who died. charge stopped but recurred and is now under treatment.	In Apparent cure but recurrence nine months later.	Radical operation upon this patient, but al- ways declined.
14	f	36	Remnant of drum 26 years, only remained.	Unknown. Prob- ably very little.	Pyoktanin and gauze drainage from February to July.	Both ears would get dry and then would be- come moist and then dry again. So far as known now dry.
15	m	20	Foul discharge, Several years. attic involved. carries.	One year under army surgeon. No improve- ment.	Pyoktanin two weeks.	Did radical min- told.
16	m	27	Perforation a and Several years. fronellar tissue R ear.	Treated by me 1903 with improvement but not cessation of discharge. Unknown.	Complete con- trol of discharge in three weeks.	Complete con- trol of discharge in three weeks.
17	f	9	Most of drum Several years. gone R ear.	Syringing and Pyoktanin powder with gauze drain.	Cured. Some Ear continues months later but recurred but ceased after third treatment.	No recurrence.

No.	Sex.	Age.	Condition Tympanum.	Duration Discharge.	Previous Treatment.	Treatment.	Result.	Remarks.
18	f	6	Small perforation each ear with granulation.	Several years.	Some granulation removed.	Enlarged perforations and used Pyoktanin with gauze drain.	Improved.	Very slight discharge last time seen.
19	m	6	Large perforation.	Several years.	None.	Pyoktanin with gauze drain.	Improved. Discharge stopped but began again.	
20	f	13	Polyp in attic. Small perforation.	7 months.	None.	Removed polyp; Enlarged perforation Pyoktanin powder and gauze drain.	Cured.	
21	m	7	Small perforation L ear.	Several years.	None.	Cleaned and Ceased discharging after two treatments.		
22	f	25	Perforation anterior inferior quadrant with granulation.	Same time.	None.	Cleansed of granulation. Pyoktanin with gauze drain.	Great diminution Disappeared from observation.	
23	f	23	Large perforation with polyp.	Two months.	None.	Removed polyp. Pyoktanin with gauze drain.	Cured in three treatments.	
24	f	30	L ear old perforation.	Several years.	Cleansing measures.	Cured in four treatments after treatment discontinued.		
25	m	21	Large perforation. Unknown.	Unknown.	Unknown.	Cleaned, pyoktanin powder, gauze drain.	Improved.	
26	f	50	Large perforation, remnant of malleus only.	Several years.	Various cleanses.	One application of Pyoktanin causes cessation of discharge for thirteen months.		
27	f	21	R ear foul discharge with cholesteatoma. In the other dead bone.	Since six or seven years, after scarlet fever.	Cleansing measures.	Cleared, then mucous discharge from Eustachian tube. Pyoktanin again. Ear now dry.	Recovered after several weeks without treatment. Advised radical mastoid.	

28	m	52	Old perforation long time. with foul discharge.	None.	Cleansed, Pyoktanin with powder drain.	Cured after two treatments.
29	f	28	Old perforation several years. with adhesions.	Various measures over several years. Occasionally dry, then would recur. Washing.	Cleansed, Pyoktanin. Gauze drain.	Cured after three or four treatments. Remains dry.
30	m	2	Perforation, foul discharge.	Unknown.	Cleansed, pyoktanin, drain.	Case disappeared.
31	f	42	Large perforation, foul discharge.	Cleansing by various methods.	Cleansed, pyoktanin, drain.	In - three Remains dry.
32	f	27	Perforation each ear with discharge apparently tuberculous.	Cleansing by vari-ous methods.	Cleansed, pyoktanin, drain. At Case usual times ear dry manner.	At Case tubercular and absolute cure unlikely.
33	f	13	Both ears suppurating, moderate perforation.	Pyoktanin.	Improved.	
34	m	37	Large perforation, adhesions, polyp matter.	Cleansing powders, gauze, with some improvement.	Great improvement, almost cured.	
35	m.	65	Almost entire loss. Many years.	Unknown.	Pyoktanin, probe.	
36	m	27	Nearly entire loss. Many years.	Curette and Pyoktanin.	Under treatment.	
			R drain.	A. P. Recurrence. Os - stilectomy.		
			R drain.	Several months.		
				Intervals for three years.		

or blown in with a powder blower and the canal then packed with cotton, the discharge thereafter will partake of the intense blue color of the pyoktanin for a number of days. In fact, I have known the color to persist for weeks. I usually use it in the form of the dry powder, first cleansing thoroughly the cavity of the middle ear by all of the methods in common use, drying the cavity and then blowing in the powder or putting it in on a moistened probe in accordance with whether we have a large or small cavity with which to deal. In some cases of attic suppuration with a small opening I have used the ordinary intra-tympanic syringe and made a thick solution of the pyoktanin with water. It seems to have no deleterious effect in any way, to be non-poisonous and to be safe to use in any strength.

Its disadvantage is its intense color and the fact that this color persists for a longer or shorter time. The color is, however, easily removed with alcohol, and if the patient is told that the discharge on the cotton or gauze is liable to be blue, he or she seldom makes any objection to the remedy.

The following thirty-six cases are taken consecutively from my record cards and show perhaps the average results with the remedy. These were cases in which the treatment was carried out a sufficient length of time to enable me to form some opinion as to the worth of the remedy; and, in most of the cases, various other methods had been in use for sometime, either by myself or others, without result. Of the thirty-six cases, four were not improved at all, fourteen were improved, sixteen were cured, two were apparently improved for some months, in fact, might have been reported as cured but the discharge recurred and I did an ossiculectomy on each with good result. Of the cases reported as cured, it is, of course, possible that some of these may have relapsed or fallen into other hands. Of the cases reported as improved, it is also possible that some of them if seen now could be reported as cured. They simply disappeared from treatment before the tympanic cavity was absolutely dry. As is well known, many patients regard an aural discharge as stopped the moment they cease to feel any moisture in the tympanic cavity. As a result, it is often difficult to follow a case to its conclusion, especially among patients who do not appreciate the real gravity of the situation. Of the cases reported as unimproved, all had radical mastoid operation advised and of these it was done on two and two disappeared from observation, one having probably been operated upon. Three of the cured cases had temporary relapse but with final cessation of the discharge.

84 N. Main St.

## **OBSTRUCTION OF THE EUSTACHIAN TUBE A FACTOR IN POST-OPERATIVE MASTOID FISTULA AND IN CHRONIC SUPPURATION OF THE MIDDLE EAR.\***

BY THOMAS HUBBARD, M.D., TOLEDO, OHIO.

My attention was called to the question of tympanic drainage in the course of observation on patients having permanent perforations of membrana tympani. The intermittent discharge was of catarrhal character and dependent upon one of two causes. There was either irritation or infection from the auditory canal with increase of fluid to be drained off; or acute congestion of the Eustachian tube with consequent obstruction to tympanic drainage. With this conception of the important function of the tube in mind one cannot escape the conclusion that it should be carefully studied as a factor in all catarrhal and purulent conditions of the middle ear, and cells accessory thereto, in which drainage is diverted externally. In the condition above referred to, perforate drum membrane with tubal obstructions, all that was necessary was to relieve Eustachian congestion, cleanse the external canal by the dry method, protect the tympanum from irritation and normal drainage was re-established. In other words, it is the relation of the calibre and functional activity of the tube to the quantity of fluid to be drained away which determines the direction of flow. To illustrate this point a case will be briefly narrated:

A gentleman having a chronic purulent otitis of more than ten years duration sought relief from offensive discharge and constant puritus of the skin of the canal. The routine treatment was used for several weeks; antiseptic cleansing of the canal, removal of small granulations, tympanic irrigation through the large perforation, catheterization and medication of the obstructed Eustachian tube by bougies dipped in nitrate of silver ointment. This was followed by the insertion of an artificial drum membrane—a rubber disc on silver wire—and external discharge promptly ceased, having been diverted through the Eustachian tube. Hearing was decidedly improved. A year after the initial use of the rubber disc as an obturator, he reported that his ear was in satisfactory condition with no perceptible discharge even during an attack of coryza,

\* Read at the Eleventh Annual Meeting of the American Laryngological, Rhinological and Otological Society, Boston, Mass., June 5 to 7, 1905.

This case is narrated not to enlarge the subject matter under discussion, but to illustrate the principle of treatment of aural discharges in general, as it is analogous to the mucous fistulae persisting after the operation for simple acute mastoiditis in so far as drainage is concerned.

To be sure, the majority of fistulae at the site of mastoid operation are due to incomplete operation; either a pyogenic cell having been overlooked, or antrum not thoroughly cleaned out, or diseased attic being the source of pus. Such as these usually require a second operation. But there are cases in which a perfect operation is followed by a persistent mucous or muco-purulent discharge from a small fistulous tract in the depth of the excavation, and to this condition attention is directed. *The first step is a careful examination of the Eustachian tube.* An acute purulent mastoid inflammation of a few weeks duration with constant flow of pus through the tube causes hypertrophy of normal lymphoid tissue in and around the tube. Simple inflation by the Politzer method or catheter does not definitely determine the functional capacity of the tube. The use of the bougie is indicated for diagnosis and treatment. The normal mucous secretion of tympanum and accessory cells left with intact membrane will seek outlet by the channel of least resistance. The problem is to re-establish the normal function of the tube, to encourage natural drainage.

In one case which I have in mind, in which a slight mucus flow from the mastoid wound persisted several months, a few applications of the bougie dipped in nitrate of silver ointment seemed to remove an obstruction and the fistula promptly healed. In this case there was probably granulation near the Eustachian orifice. Recovery would probably have taken place in time, but even a mucous fistula is more or less of an opprobrium in mastoid surgery and rational treatment is urgent. The habit of diverted drainage should not be allowed if possible to prevent, for it is not improbable that even Eustachian secretion, following the path of least resistance, may be permanently directed toward the fistulous tract, if tubal obstruction near the orifice prevent for any considerable time natural flow into the naso-pharynx.

The second division of my subject refers to tubal obstruction as an indication for radical surgical operation in chronic suppurative conditions. Whatever be the cause of the purulent discharge—more or less extensive areas of pyogenic membrane in poorly drained cells, or necrotic bone, ultimate success in treatment may

depend upon the condition of the natural drainage canal, the Eustachian tube. The proposition is simply stated. If the tube be permanently closed, impervious to forcible inflation and impenetrable by prolonged application of the bougie, then the only way by which the aural discharge can be stopped is by destruction of all secreting membrane, normal or pyogenic, and cicatrization or epidermization of the tympanum, attic and mastoid cells; in other words, one must resort to the radical operation.

I can state my position more clearly by an illustrative case. A lad of seventeen gave the history of having had a foul smelling ear discharge for twelve years. The symptoms for which he applied for relief were; constant discharge with odor, headache, occasional vertigo, lack of power of mental concentration interfering with his education, and impaired general health. Routine treatment, attic and tympanic irrigation, gave decided relief for a time. Persistent attempts to open the Eustachian tube failed. There was a recent obliteration of the osseous portion, as he told me that for about four months he had not been able to blow air through by the Valsalva method, a practice which had formerly given him relief. Treatment was stopped for a month to see if improvement was permanent, and at the end of that period he requested the radical operation as he had relapsed into the former condition. The Schwartz-Stacke operation was done and the result was perfect. All annoying symptoms disappeared and his general and mental condition are decidedly improved. In this case permanent occlusion of the tube was a factor in deciding against prolonged treatment and fortified the decision in favor of the radical operation. It was also a factor in the excellent result.

Conclusions: Obstruction of the Eustachian tube is a common sequence of acute purulent otitis media and purulent mastoiditis.

It is a factor in causing chronic otorrhoea, and post-operative mastoid fistulae.

Permanent occlusion gives one indication for the radical operation in chronic purulent otitis.

205 Ontario St.

## **ACUTE PURULENT OTITIS MEDIA COMPLICATING TYPHOID FEVER.\***

BY EWING W. DAY, M.D., AND C. Q. JACKSON, M.D., PITTSBURG, PA.

S. M. Arab, laborer, 30 years of age, was admitted to the Western Pennsylvania Hospital in the second week of a typhoid fever of severe type. At the end of the fifth week the typhoid fever had apparently run its course and the temperature had touched normal.

The patient suddenly began to complain of severe pain in the left ear and mastoid region and the latter became tender. During the night a copious, bloody, serous discharge flowed from the canal, and stained the pillow. Upon examination a ragged irregular aperture was found in the lower part of the membrana tympani which was of a dark purplish brown color. On the second day of the discharge the temperature began to make wide daily excursions reaching  $104^{\circ}$  but returning each day to normal. The mastoid was still tender, and opening was advised but the patient died, apparently of typhoid toxemia, on the fifth day after the onset of the ear symptoms, the temperature just before death rising to  $107^{\circ}$ .

*Autopsy* by Dr. Ralph Duffy. Intestinal ulcerations were healed. Spleen was enlarged. Lungs showed some hypostasis, also numerous infarcts some days old. Kidneys, left, normal; right, two infarcts. Meninges, sinuses, and brain normal. Dura over the floor of middle fossa normal and not adherent. Through it could be plainly seen a dark area corresponding to the left tympano-mastoid region. On removal of the dura the portion of the temporal bone over the mastoid and tympanic roofs was found to be of a dark bluish purple color. The groove for the sigmoid sinus was of the same bluish purple color—not the stain we sometimes see in pyogenic invasion of the sinus. On removing the tegmen tympani, the tympanum and antrum were found full of blood stained pus. The mucous membrane of both cavities was swollen and was dark crimson with spots of brown discoloration, with here and there sloughs of necrotic tissue. At the tympanic tubal orifice the mucous membrane seemed normal. In the removal of the temporal bone it came apart in a vertical antero-posterior plane roughly separating the petrous portion from the mastoid. The walls of the mastoid cells

\* Read at the Eleventh Annual Meeting of the American Laryngological, Rhinological and Otological Society, Boston, June 5 to 7, 1905.

were found softened, dark in color, with here and there, in scattered locations, cells filled with blood stained pus. A number of these pus pockets were scattered along the cells adjacent to the sinus groove, but the sinus and the bone in contact therewith were absolutely normal. The membrana tympani was apparently sloughed away to an irregular ring, the edge of which was rough and ragged. The stylo-mastoid artery was found filled with a partially organized clot extending from the posterior auricular upward as far as it could be traced. The unorganized portions were filled with pus, cultures from which showed streptococcus in pure culture, as did the pus from the canal.

We believe that the post mortem findings in this case corroborate the clinical observations of ours published in the *Laryngoscope*, December 1904, page 959, and that they go to show that, in some cases at least, acute purulent otitis media complicating typhoid fever is due to embolism or thrombosis of the tympanic and mastoid blood vessels.

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**Persistent Epistaxis.—MARTIN-DESCAMPS.—***Rev. Hebd. de Laryngol. d'Otol. et de Rhinol.*, May 6, 1905.

A child of 11 years had suffered for three days from free nasal hemorrhage so persistent that his state had become very anaemic. This condition developed shortly after having taken a bath in a neighboring river.

An anterior rhinoscopic examination revealed nothing abnormal. A posterior examination was impracticable on account of the restlessness of the patient. A few days afterwards, as the epistaxis continued, an examination was made of the throat, and back of the tonsils two dark looking objects were observed. On being removed by forceps, these proved to be two leeches gorged with blood.

It is probable that the leeches entered the nostrils of the child while bathing in the river, and while holding his head under the water.

SCHEPPEGRELL.

## THREE CASES OF TRIFACIAL NEURALGIA DUE TO INTRANASAL CAUSES AND TREATED SUCCESSFULLY BY INTRANASAL METHODS.\*

BY R. BISHOP CANFIELD, M.D., ANN ARBOR, MICH.

*Case I.* Patient J. H. W., age 68. Widower, Occupation, Literary. Previous history negative. Has suffered from right sided trifacial neuralgia for something over two and a half years. The pain has been almost constant although there have been remissions as well as periods when it would be more severe than usual. The pain was characterized by paroxysms of extreme intensity during which the patient suffered the most exquisite torture. During the past few months, the pain has become more constant and the paroxysms more frequent and severe, until now he is scarcely ever without pain. This pain is confined to the Ophthalmic division of the Fifth nerve. It was at first noticed as twinges in the skin covering the tip and alæ of the nostril and side of the nose. Later the skin of the cheek became affected and even the ends of the hairs of the eyebrow near the median line became exquisitely sensitive to touch; the pain would radiate upwards over the forehead. For the past few weeks a boring pain has been severe in the eyeball and behind it.

The patient has had all kinds of treatment without success. Courses of personal hygiene, of drugs usually administered in such cases, of electricity, etc., had been of no avail. Examination by an experienced Rhinologist had been negative. The resection of the Gasserian ganglion had been considered but abandoned on account of the patient's heart condition which forbade an anesthetic.

October 20th. Patient seen for the first time. He was evidently suffering great pain, was bent forward holding his head and rocking himself back and forth. Pain was at this time confined to the nose, cheek and forehead. Touching the tip of the nose ever so lightly caused severe pain deep in the orbit. Examination of the nose was necessarily very difficult. It revealed:—Nothing remarkable other than that the nasal septum deviated slightly to the right and that against this deviation the enlarged and somewhat deformed middle turbinate rested for an area of about a quarter of an inch in diameter. Cocaine did not reduce this area nor materially affect the turbinate.

\* Read before the Middle Section of the American Laryngological, Rhinological and Otological Society, Toledo, Ohio, February 24, 1905.

The patient was told that there was some trouble in his nose but whether it was of sufficient importance to cause even a portion of his symptoms could not be said. He was advised to undergo a nose operation and accordingly entered the University Hospital for this purpose.

November 1st. The anterior end of the right middle turbinate was removed with scissors and punch. There was no bleeding and no packing was inserted. Soon after the operation the patient began to experience relief from pain in the skin but complained of pain in the eyeball and behind it. The next day he felt somewhat better and had but little pain for two days. During these few days he was given Arsenic in the form of Fowler's Solution which was soon stopped as it affected his stomach. After two days, the pain returned. Several injections of Strychnine 1/30th gr. were made about the eye without effect. The only pain of which the patient complained was deep in the orbit. Eight days later the pain returned in full violence. Examination revealed the Middle Meatus filled with dry bloody crusts. Removal was followed by relief. The next day, the nose was again cocainized and it was found that the middle portion of the Middle Turbinate still pressed against the septum. The middle portion was now seen to be much larger than had been suspected before operation. This was removed by the punch. It was found to be composed of two large cells filled with a semi-solid jelly like mass which rolled down into the pus basin looking very much like a ball of currant jelly. The pain from which the patient was suffering disappeared in the course of a few hours. From this time on, the patient remained free from pain except at certain times when examination would reveal collections of dry crusts in the operated area. Removal was always followed by relief.

February 23rd. Has had no pain for three months and says that he has not felt so well in years. He can now wash his face and rub it with a rough towel without causing any discomfort. This he considers his greatest luxury.

*Case II.* Mrs. P. Brooklyn, Mich. Patient has suffered from right sided Trifacial Neuralgia for the past eight years. Pain has been almost constant but not very severe except at times when she would have the paroxysms characteristic of the trouble. Pain has been confined to the skin of the nose, face and upper lip. She had been sent to the Hospital for resection of the Gasserian ganglion and was referred to the nose clinic for examination.

At that time, the patient was having a rather severe paroxysm of pain. Examination revealed a considerable area of pressure between

the septum and middle turbinate. The latter showed a marked polypoid degeneration. Cocaine and adrenalin were applied to the middle turbinate. Some relief was at once experienced. This relief became more marked after a few hours. The patient was given a spray containing a little cocaine and adrenalin for frequent use while in the Hospital. She remained several days under observation and during this time used the spray enough to keep the turbinate and septum separated. While under observation she suffered no discomfort. Resection of the middle turbinate was advised but refused. She said she could not remember when she had felt so well and refused to have anything done, fearing a return of the old pain. She was given a spray of adrenalin and went home promising to return as soon as she had any more trouble. She has not been heard from.

*Case III.* Mr. L., 82, Detroit, Mich. Was referred from the Neural Clinic where he had been treated for some time. Patient gives a history of severe attacks of right sided trifacial neuralgia lasting over a period of eight years. Pain has been limited to the skin of the tip of the nose the right side of the nose and upper lip. During the last few years the pain has been almost constant.

Examination of the nose showed the middle turbinate much hypertrophied and pressing against the septum over quite a considerable area. As he was receiving treatment in another clinic, he was not operated at this time, but cocaine and adrenalin were applied on cotton swabs. Sprays were of little avail as the hypertrophy was of a marked degree and density. After some days he began to feel a good deal of relief as long as the turbinate and septum were separated but had pain as soon as they came together again.

In January, he was operated upon. The larger part of the middle turbinate was removed with the punch. It was found to be composed of bone rather more dense than the normal turbinate body. Haemorrhage was minimum. Since a few days after the operation I have not seen him but frequent messages by telephone inform me that he has had no return of his previous symptoms.

The study of these three cases shows that in each case the Ophthalmic division was the one affected, the disease being limited to its nasal branch. This nerve separates from the main trunk just behind the Sphenoidal Fissure through which it enters the orbit. In the orbit it sends branches, the long ciliary directly to the eyeball, and the infratroclear which after passing to the skin of the forehead runs forward to terminate in filaments which supply the conjunctive caruncle, lachrymal sac and the skin of the upper eye lid and root of the nose.

The main trunk of the Nasal nerve leaves the cranial cavity for the nasal fossa through a small canal just between the anterior extremity of the Cribriform Plate and the Frontal bone. Here it gives off an internal branch which supplies the mucous membrane of the septum as far as the nostril, an external branch to the mucous membrane of the lateral wall of the nose and the anterior ends of the middle and inferior turbinates, and an anterior branch to the skin of the lower third and tip of the nose.

Case I, from whom the history in detail could be obtained shows clearly the course of the disease and the sequence of events. His pain was at first confined to the skin of the tip of the nose and of the alæ of the nostril. From here it spread very soon to the skin of the side of the nose and to its interior. For some time the pain was confined to this area which is supplied by the internal, external and anterior branches of the nerve. The one demonstrable pathological condition which could be answerable for the patient's symptoms was the pressure exerted simultaneously upon these three branches at the area over which the middle turbinate rested against the septum. At this point there was then a possible source of irritation. As it was not until considerably later that pain was experienced in regions supplied by the infratroclear and long ciliary branches, it was permissible to suppose that disease in these branches was a result of extension backwards along those nerves already affected. Each succeeding branch was implicated in direct ratio in point of time to its distance from the seat of pressure.

In Case III, it must be noted that the skin of the upper lip was painful. This region is supplied by the Supramaxillary division. However, to have this part supplied by the Ophthalmic is not an impossible variation.

It is not intended to explain all or even a large per cent of cases of Neuralgia of the Ophthalmic Division of the Fifth nerve as due to the cause described, but inasmuch as hurried search has revealed no reports of similar cases, it has been though worth while to draw attention to the fact that the symptoms of this most distressing disorder may arise from this slight cause which can be corrected and for which careful search should be made before recourse is had to such serious operations as are being frequently recommended for the relief of this condition.

## OBSERVATIONS ON CATARRH AND PREDISPOSITION, OR REFLEX VERSUS CATARRH THEORY.\*

BY B. M. BEHRENS, M.D., MINNEAPOLIS, MINN.

Last winter I published a paper on this subject (*Northwestern Lancet*, Jan., 1904), in which the conclusion was reached that catarrh, commonly understood as a chronic inflammation of the mucous membrane, does not exist and that predisposition to functional and pathologic disturbances of the eye, ear and respiratory tract consists in an irritation of the nasal nerves, which causes dilatation of the arterioles, with hyperemia of the capillary system: A vaso-motor paresis. An increase of this irritation, either from atmospheric impurities, climatic influences or metabolic irregularities, will augment the paresis and lead to increased congestion, exudation, exit of leucocytes, and we have, what in daily parlance is called acute inflammation; an increased vaso-motor paresis or paralysis.

For the purpose of having this contention of mine corroborated and also in order to stimulate clinical investigation on the part of my rhinological confreres, I shall present a number of clinical observations, which, it will be admitted, allow of no other inference than that of reflex.

I shall explicitly state that no other mode of treatment than operative, instrumental for removal or reduction of hypertrophies, and cauterizations for eliminating irritation has been employed.

I stated in my former paper of a year ago that I felt sorry at having nothing better to offer the medical profession than cauterization, and I can only repeat it here with the supplementary remark, that it is far from being satisfactory to myself. Still as an evidence of the correctness of my views it will serve its purpose; future medical research may discover, eventually, something better.

In order to avoid repetition for every case presented, it is necessary to state that in all cases of complaints, which came under my observation, whether referable to the eye, ear or respiratory tract, a so-called chronic angina or "pharyngitis" would be benefited by nasal cauterization to the extent that the throat would assume normal condition, unless an irritation of the nerve fibres of the throat itself, as, for instance, in cases of diseased tonsils with cheesy ac-

\* Read before the Hennepin County Medical Society, April 3, 1905.

cumulations or simple hypertrophy of the tonsils or adenoid tissue in the pharyngeal vault, was present, which of course necessitated their instrumental removal. While this on the face of it looks like an exception to the rule, viz., that the nasal nerves have anything to do with the throat, it verifies my contention that the pathologic condition of the throat is a vaso-motor paresis only and due to irritation of the spheno-palatine and glosso-pharyngeal nerves. If it were catarrh, a physiologic aspect of the throat could not be at once established.

While removal of irritation in the naso-pharynx and pharynx must be considered an easy task, the difficulties are many in the nostrils, and disappointment in a number of cases has been my lot. Herewith I refer to cases of functional disturbances of old age, where not only the sympathetic system may have suffered deterioration, but also the vessels have undergone pathologic alteration and consequently the circulatory system is beyond the fully beneficial influences of elimination of nerve irritation.

In order to minimize the number of cauterizations, I have striven to follow the track of nasal nerves, whose fibers were involved in the irritation and sought to centralize the application of the cautery in order to be sure of cutting of conduction to the vaso-motor centers, but when we remember that the sensory and sympathetic nerve supply of the nasal mucosa forms a network of intricate and wide extent, also occupying localities anatomically difficult of access, we will have to be content with what improvement of circulation can be obtained by eliminating hyperesthesia wherever it is possible. Besides the extent of cauterization in order to prevent regeneration of the nerve, and therewith its conductibility is another problem to be solved; in short, the cauterization considered as a therapeutical agency has as yet a haphazard look.

Time and again I have been asked by fellow physicians whether I can always locate the origin of reflex congestion in the different localities. The intricacy of nerve filaments in the nasal mucosa precludes the possibility of doing this with any degree of exactness, and for this reason I have followed the rule, which I recommended also in my former paper, to use the condition of the throat as a gauge, by which to judge whether all irritation in the nostrils has been permanently removed or not. However, as a general rule, congestion of the eyes will be due to irritation of the naso-ciliary nerve fibers, and the most hyperesthetic spots will be found in the upper part of the nostrils, both on the external and septal sides.

A pressure with the probe here and still more an application of the cautery point will cause an increased congestion of the eye and lacrimation, but if the conductibility has been cut off, it will be succeeded by a diminution of the original congestion. The immediate increased congestion can be explained only as a result of the increased irritation of the central part of the nerve. The same result is to be expected if we wish to remove congestion of the ear, and is the most reliable evidence that we have hit the nasal nerve filaments, the irritation of which causes congestion of the ear. Subjectively, it has also been verified in many instances by the patient's complaint of increased tinnitus or fulness of the ear. Congestion of the ear is most marked in the upper part of the drum-head, along the manubrium and frequently in the external meatus close to the drum-head. The localities in the nostril causing reflex congestion from irritation are, as a rule, the maxillary side of the middle turbinate and corresponding part of the maxilla itself.

#### CONGESTION OF THE EYE.

H. R., farmer, 54 years of age, has had chronic inflammation of the eyes for more than twenty years. Both the palpebral and ocular conjunctivae are highly congested, and the right lower lid secreting a thin milk-white fluid, which has caused excoriation of the lower lid margin. The right nostril presents an appearance of intense congestion with hypertrophy of the middle and lower turbinates, while the left nostril gives the same aspect to a lesser degree. After a number of cauterizations, congestion disappeared, and eyesight, according to his own statement, improved.

H. O., 24 years of age, has had weak eyes as far back as he can remember. After four weeks' treatment with nasal cauterization twice a week congestion and eyesight improved.

K. L., 26 years of age, has had inflamed eyes for two years. Congestion disappeared after two nasal treatments.

Miss G. E., 25 years of age, has had weak eyes for several years. Has been treated by two eye physicians at different times, by local applications, with only temporary benefit. Palpebral conjunctivae very congested. After three weeks' treatment, congestion gone. Reports a month later that she feels better and eyesight much improved.

A. E., farmer, 54 years of age, has for about fifteen years been troubled with "sore eyes," and itching across the eyebrows. In winter-time these symptoms have been mild, but with arrival of warm weather the eyes would begin to smart and itching to in-

crease. The rubbing and scratching of the skin has produced a multitude of cracks and fissures, which at this, his first presentation, is partly obliterated by an edematous swelling from one inch above the eyebrows to a line below the tip of the nose.

The first impression his countenance made on me was that of a leper. His eyes were bloodshot, and the palpebral conjunctivae of the lower lids were studded with chalky deposits in the Meibomian glands.

After the first two treatments with cauterizations in the upper parts of the nostrils, swelling of the face disappeared, but it took quite a number of cauterizations to improve the congestion of the lids. Chalky deposits were removed, and but for a flabby appearance of the conjunctive nothing would remind one of this severe affliction of the eyes.

G. O., a girl, 7 years of age, was brought to my office with the following symptoms due to cold: Conjunctiva of the left lower lid congested and a small triangle-shaped part of the bulbar conjunctiva from cornea to the external canthus in the same condition. Externally on the middle part of the upper lid was a blister at time of examination, while at other times a blister would form under the left auricle. This would occur alternately, whenever she took cold, and always disappear spontaneously with the other symptoms. The predisposition to the eye affection had been there for several years.

Nasal inspection, although difficult in a young child, revealed normal condition except on the septal side of the left, which was in a state of general tumefaction. On account of objection to further manipulation than introduction of speculum, the exact nature of this tumefacation could not be made out. The acute symptoms disappeared in less than a week, without treatment. For obvious reasons, the cautery point was not applied.

G. L., 13 years of age, school-girl, has for the last eight years been troubled every winter with phlyctenular keratitis. The previous winters she had been attended by several eye physicians, until with the arrival of warm spring weather the affection would disappear of itself. This winter she started six weeks ago in the eye dispensary, and has been treated with atropine and mercury salve without any benefit. The patient presents the familiar scrofulous appearance. The left eye shows a pericorneal injection along the outer rim of the cornea; the edge of this is infiltrated. Pupil extremely dilated; strong photophobia.

After one treatment, at which both sides of the left nostril were cauterized in the upper parts, the inflammatory symptoms began to subside, and next day there was only a faint trace of pericorneal injection. The eye was well in less than a week.

Of deep-seated affections of the eye I have not met with any except the one of amblyopia, which was reported in my first paper, and one of glaucoma, which was benefited by removal of a piece of the middle turbinate.

While I am not in position from these two cases to make any strong claim for deep-seated affections of the eye being due to nasal irritation, it cannot be denied that the immediate improvement which took place after nasal treatment is suggestive of such a cause.

#### CONGESTION OF THE EAR.

E. B., farmer, 68 years of age, complains of tinnitus in both ears. Hearing distance for the watch is reduced to contact. A few cauterizations of hyperesthetic spots on the middle turbinate improved tinnitus, but not the hearing.

Miss E. K., 30 years of age, consulted me only once. Her hearing had for several years been failing gradually. Hyperesthetic area on the middle turbinates were cauterized, and the hearing increased immediately in the left ear from 3 to 9 centimeters, and in the right ear from 0 to 4 centimeters.

H. K., farmer, 70 years of age, has been troubled with noises in the ears for many years. After several treatments, tinnitus was very much reduced, but the hearing, which was poor, remained *in statu quo*.

L. S., school teacher, 26 years of age, received only one treatment in the right nostril, with cauterization of the external surface of the middle turbinate, after which the distance for the watch rose immediately from 10 to 20 centimeters.

Rev. E. J., 54 years of age, has for more than twenty years been troubled with tinnitus in the left ear, for which he consulted me in Chicago sixteen years ago.

The left middle trubinate is hypertrophied and has assumed a size double as large as that of the right nostril, pressing on the septum. The frontal and external surface is very congested and tender to pressure by the probe. A removal of hypertrophic mucofibrous tissue and cauterization of hyperesthetic area has diminished the tinnitus and raised the hearing distance for the watch from contact to six centimeters.

An unusual occurrence in connection with this case deserves to be recorded, because it vindicates my theory of reflex. The time between the second and third visit at my office was one week, and congestion of the drum-head had decreased materially with improvement of the hearing to six centimeters and diminution of tinnitus. Being anxious to obtain further improvement at this, his third visit, several cauterizations were made. The patient steered right after the treatment for a barber shop, and had his sparely covered head further trimmed, with the result that he took a cold and got an inflammation of the left ear, with increased congestion—increased vaso-motor paresis—bulging of the upper part of the drum-head and pain, which lasted until the membrane broke, and a little bloody discharge gave evidence of the sympathetic injury. Until this secondary congestion disappeared the patient was troubled with two different sounds, the original, which had again increased, and was like constant buzzing, and the second, more like puffing, and synchronous with the pulse. When these acute symptoms had disappeared, after a week, the hearing distance for the watch, which had been reduced to contact, improved to six centimeters again, and tinnitus was scarcely audible.

G. J. B., 50 years of age, has for several years been troubled with hardness of hearing and tinnitus in the left ear. Distance for the watch is two centimeters. The left drum-head is considerably congested, and in the lower and posterior part there is an opening of about the size of a hempseed. This perforation had three months earlier been diagnosed by another physician.

After a few cauterizations of the left middle turbinate, the congestion of the drum-head began to decrease, and after the improved circulation had been established this perforation became gradually smaller, until it closed entirely after three weeks without any treatment whatever of the ear itself. Tinnitus became less annoying, but the hearing remained *in statu quo*.

In regard to affections of the throat, improvement of its condition will always follow upon nasal cauterizations, and report of cases may be omitted, inasmuch as, as above stated, this ought always to be our guide in determining to what extent our nasal cauterizations have been practiced.

#### CONCLUSION.

The possibility of improving circulation in the eye, ear and upper respiratory tract by cauterizing certain hyperesthetic areas of the nasal fossae allows of only one conclusion, viz: That irritation of

nasal nerve fibers constitutes the main factor of causing reflex congestion; and, further, the fact that improved nutrition of the nasal tissues advanced *pari passu* with elimination of hyperesthesia proves that the underlying pathologic agency of this malnutrition can have been nothing but a reflex congestion, maintained by the paretic state of the vaso-motor centers, which superintended the circulatory system. The nasal mucosa abundantly supplied with sensory and sympathetic fibers is from earliest childhood exposed to climatic vicissitudes, and mechanical injuries of impure air, which strike those parts of the nostrils most severely, through which the inspiratory air current passes, and for this reason we detect the earliest manifestations of hyperesthesia in the upper part of the nostrils on the septal and ethmoidal side and also on the anterior and inferior surface of the middle turbinate. Irritation once started is therefore the foundation of congestion and exudation, and a further encroachment in the nerves by hypertrophic or hyperplastic products is produced, by which the paretic condition of the vaso-motor centers is maintained.

If branches of the naso-ciliary and Vidian nerves are involved in the irritation, the important organs of vision and hearing are endangered.

In order to illustrate the fact that it is nerve irritation, which causes congestion, I shall again call attention to the experiment of causing pressure by the probe on different areas of the nostrils. Applied on an indolent spot, there will be no reflex, while pressure on a hyperesthetic spot will call forth increased congestion of the lids, lacrimation, congestion and sensation of fulness in the ear, headache, etc., symptoms which can be explained only on the theory of vaso-motor paresis brought about by increase of irritation.

The opposite experiment of stimulating the vaso-motor centers, by applying cocaine or adrenalin on the nasal mucosa causes contraction of the arterioles, congestion disappears, and returns when the effect of these drugs has passed off.

The cautery point destroys the irritated nerve filaments and the permanent improvement of circulation gives evidence of elimination of a factor which has held the vaso-motor centers in a paretic state. Consequently predisposition to acute inflammation is also removed.

The vaso-motor centers being primarily involved, it follows from necessity that:

1. The theory of catarrh or primary affection of the mucosa is untenable, and also
2. The theory of inflammation by continuity of tissue.

While irritation of the nasal nerves causes a weakening of the vaso-motor centers, which constitutes predisposition to reflex disorders, it can only be surmised that the chronic congestion of the mucous membrane makes this a fit soil for invasion and propagation of pathogenic bacteria, particularly under favorable conditions of lowered vitality or increased virulence. The suggestion, which was made in my first paper, and the justification of which is further strengthened by the common observation of one-sided bacterial infection, I can only emphasize again. Negation of its correctness would mean that a perfectly healthy mucosa presents no barrier to infection, a position which would be tantamount to nihilism in medical science.

#### EPICRITICAL REMARKS.

I am again conscious of having but poorly presented my subject, "catarrh or predisposition," in the light of its importance, but having explained as well as I am able catarrh as an affection of the vaso-motor system, I trust that my clinical observations will offer an inducement to other rhinologists to prosecute similar investigations, and there will be no lack of verification.

My contention that removal of nasal irritation extends its beneficial effect on circulation in distant localities is probably the least acceptable besides calling attention to the fact that the action and reaction of the sympathetic system is as yet to a great extent a *terra incognita*, I shall only cite one of our great authorities, Hitzig, who says:

"Injury, either central or peripheral, of the nervous system, will affect the whole system."

The magnitude of this injury of the sympathetic system is evidenced by the widespread reflex congestion. In return, I offer my clinical achievements: improved nutrition, locally and generally, and removal or diminution of predisposition to acute reflex disorders, as the best endorsement of Hitzig's dictum.

I have presented no details in regard to the mode of treatment which I have employed for the reason that all is said that needs to be said, when the necessity of removing hyperesthesia is impressed upon the profession. When future treatment of functional disorders of the eye, ear and respiratory tract shall be first directed towards permanent improvement of the nasal condition, predisposition to diseases will be minimized, not through any primary beneficial effect on the mucous membrane, but because the sympathetic system has obtained increased vigor, rendering it capable of maintaining normal caliber of the circulatory system.

In my attempt to establish as fact that nerve irritation plays the principal role of affecting the circulatory system, I have followed the physiologic teaching of irritation of sensory nerves causing vaso-motor paresis, although this tenet appears to me as untenable as the catarrh theory. The experiment which has led to the adoption of this theory is based on the well-known observation that irritation of tissue causes first contraction of the artery, followed by increased dilatation; in other words, it is assumed that the irritation travels through the sensory nerve to the sympathetic ganglion, and from here is reflected along the sympathetic fibre to the artery. When we note the fact that irritation of a sensory nerve, without at the same time also irritating the sympathetic fibre, is a physical impossibility, it must be allowed that the experiment is not conclusive in favor of the sensory nerve theory; and why a chronic irritation of a sensory nerve should exhaust the sympathetic ganglion is more difficult of understanding, while this result would seem to be but natural to a constant irritation of the sympathetic fibres.

In view of the clinical observations above presented, my doubt about the correctness of the sensory nerve theory seems justified. It is for therapeutical purposes, however, immaterial which theory is correct, inasmuch as hyperesthesia remains the principal guide for our intervention.

It is a familiar saying that man is as old as his arteries, consequently as healthy. My views tend to verify it, with that little difference, however, that the vaso-motor system be given the first place as determining not only the nutrition of the tissues, but also that of the artery itself.

And, then, in regard to acute reflex disorders. How to explain their self-limitation? Has the cell, which has only its life and being in the sympathetic system, any recuperative power of its own?

*Vis medicatrix naturae!* Where is it if not in the sympathetic or trophic system, with its ganglia-accumulators of electric force?

Syndicate Arcade.

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**REPORT OF THE GARCIA JUBILEE CELEBRATION HELD  
IN LONDON, MARCH 17, 1905.\***

BY HARMON SMITH, M.D., NEW YORK.

In the presentation of these remarks, which through your courtesy I report, I wish to express my gratitude to the Section for the confidence reposed in me, and I trust that you will judge with leniency my efforts to adequately describe such an occasion as the Garcia Centenary.

It was generally conceded that one mind conceived the affair and gave it the initial impulse, but all the laryngologists of London became associated with the movement as the preparations for the celebration progressed, and the cordial welcome they extended the visiting representatives was such as to make the occasion a treasured remembrance.

Representatives from the Musical and Laryngological Societies of the world were assembled on the 17th of March, at noon, in the rooms of the Royal Medical and Chirurgical Society of London, to celebrate the 100th Birthday of Senor Manuel Garcia.

So much has been written of his life history and its intimate association with Laryngology, that it is unnecessary for me to refer to it. So, passing over what is familiar to you all, I confine myself to the enumeration of the tributes paid to his genius, and to recounting the honors which were paid him.

We were all prepared to greet an extremely old man tottering with age, but to our pleasurable surprise, a gentleman of slightly bowed frame, bright eyes, and genial expression, presented himself. He was immediately escorted to a dais, covered with the many beautiful floral pieces which had been received from different musical societies from all parts of Europe. Senor Garcia came to us direct from the King, having just received from his hand the insignia of the honorary Commandership of the Royal Victorian order,—a gracious testimonial of his sovereign's regard and appreciation.

The Chairman of the Garcia Committee, Sir Felix Semon, opened the meeting with an address of welcome, after which, the presentation of honors, degrees, and illuminated addresses followed in this order:

\* Read before the New York Academy of Medicine, Section on Laryngology and Rhinology, May 24, 1905.

1. The Spanish Charge D'Affaires, on behalf of His Majesty King Alphonso, XIII, of Spain, delivered a message and invested Senor Garcia with the Royal Order of Alphonso XII.

2. Professor B. Fränkel, Delegate of the Prussian Secretary of State for Public Instruction, presented a message from the German Emperor, and the Great Gold Medal for Science, which is a rarely awarded distinction.

Illuminated addresses from;

1. The Royal Society of London.
2. The Prussian Academy of Sciences.
3. The University of Königsberg.
4. The Victorian University of Manchester.
5. The Medical Faculty of Heidelberg.
6. Royal Academy of Music.
7. Royal College of Music.

Following the presentation of these addresses, many of Senor Garcia's old pupils gave expression to their sentiments in touching and appropriate words. Particularly pathetic were the remarks of Mr. Otto Goldschmidt, the husband of Jenny Lind, who said that his wife had continued to regard, respect and venerate Senor Garcia, her music master, until the end of her days, and that she attributed her success in the musical world to his instruction.

Addresses and messages from the following Laryngological Associations and Societies;

1. American Laryngological Association—Sir Felix Semon.
2. Belgian Society of Otology, Rhinology and Laryngology.
3. Berlin Laryngological Society.
4. British Laryngological, Otological and Rhinological Association.
5. Danish Laryngological Society.
6. French Laryngological, Rhinological and Otological Society.
7. Italian Laryngological Rhinological and Otological Society, and Neapolitan School of Laryngology.
8. London Laryngological Society.
9. Netherlands Laryngological, Otological and Rhinological Society.
10. New York Academy of Medicine. Section of Laryngology.
11. Paris Laryngological Society.
12. Rhenish-Westphalian Laryngological Society.
13. St. Petersburg Laryngological Society.
14. South German Laryngological Society.

15. Spanish Laryngological, Otological and Rhinological Society and Academy of Medicine and Surgery.
16. Vienna Laryngological Society.
17. Warsaw Laryngological Society.
18. West German Laryngological Society.
19. Hungarian Laryngological Society.
20. Telegram Medical Society of Japan.
21. Telegram Moscow Laryngological Society.

The morning program was concluded with the presentation, to Senor Garcia, of the portrait of himself, painted by Mr. Sargent, for which subscriptions were received from international contributors—the friends and admirers of the Centenarian. The picture is life size and a masterpiece, doing full justice to the skill of the artist in portraiture. The only regret expressed, was that it represented Senor Garcia in profile, instead of in a three quarter pose, which many present would have preferred. Senor Garcia made a very pleasing and appropriate response to the assemblage, thanking all for the great honors paid him. His emotion was too great for him to complete his address, and Sir Felix Semon delivered it for him until a point was reached where some laudatory remarks pertaining to Sir Felix were embodied, when with considerable vigor, Senor Garcia requested that his manuscript be returned, in order that he, himself, might bring it to conclusion, thus demonstrating a mental acumen, not to have been expected in one so advanced in years.

An elaborate luncheon at the Automobile Club followed this meeting, tendered to the laryngologists by Dr. St. Clair Thompson. Here all the visiting laryngologists came in contact with each other, as well as with the London men. In response to universal request for a speech, Dr. Thompson spoke a few cordial words of welcome, in which he successfully dissipated the statement, which, he attributed to an American; that the three most silent things in the world are an oyster, a sphinx, and an Englishman.

Following the luncheon, there was a clinical meeting of the Laryngological Society of London. About twenty different cases were presented. Some of which are demonstrated daily in our clinics, but not a few were worthy of careful consideration. Dr. Herbert Tilley presented a series of cases operated upon for pan sinusitis, with especial reference to frontal involvement. A case of total laryngectomy for carcinoma, by Mr. Charters Symonds, was of particular interest, as was also a case of Sir Felix Semon, in which a soft fibroma of the larynx and neck had been removed, by external operation, without opening the cavity of the larynx. Dr. Watson

Williams presented a case of cerebro-spinal rhinorrhœa, in which the patient was literally dripping cerebro-spinal fluid. This case was of especial interest, as it seemed impossible for a case to continue secreting the amount which flowed in one hour of observation. A full description of these cases, and also of the discussion of them, will duly appear in the proper periodical.

The evening entertainment was the Banquet, tendered Señor García at the Hotel Cecil. About five hundred ladies and gentlemen were present at this closing festivity of the day.

Mr. Chartres Symonds, President of the Laryngological Society of London, presided and proposed the first toast of the evening,—the King. King Edward had requested that he be personally represented at the banquet, and Lord Suffield acted in this capacity. In the course of the address, the Chairman directed especial attention of those present to the honorary insignia, bestowed upon the illustrious guest of honor, by the sovereigns of England, Germany and Spain, viz:—The Victorian Order, conferred by King Edward, the Great Gold Medal of Science bestowed by Emperor Wilhelm, and presented by Professor Fränkel, the importance of which will be more highly appreciated when it is recalled that in the past it has been only conferred upon Virchow, Koch, Erlich, and Mommse; and the Grand Cross of the order of Alfonso XII, which entitled Señor García to be addressed as his excellency.

The next toast proposed was Señor Manual García, by Sir Felix Semon. In a pleasing speech, the life history of Señor García and his work was briefly given, and the important phases of his career dwelt upon. Señor García responded to this toast, and read in a firm voice, the first few sentences of his address, when he became slightly inarticulate, and he requested the Chairman to finish it. The opening sentences are of such beauty, that I beg your indulgence to quote them.

"Words, one has said, are given us to conceal our thoughts. They will admirably fulfill that purpose if you take mine as a full and complete expression of my feeling on this extraordinary occasion. But words, whatever use we make of them, are not mere masks, they are living things, intensely living things to some, to those of us who hold the magic ring that makes them slaves. They are as mighty friends, friends such as you to me, who from the ocean depths of your indulgence fling back to me my own poor and trivial deeds, transfigured into something rich and strange." Continuing in a similar strain the address charmed us, so beautifully was it expressed.

The Chairman then proposed the toast, "Our Foreign Guests," to which responses were made in the following order by:

Herr Stockhausen.  
Dr. Harmon Smith.  
Dr. Goris.  
Dr. Kuttner.  
Dr. Lermoyez.  
Dr. Poli.  
Dr. Botella.  
Dr. Burger.  
Prof. Chiari.

The next afternoon, Professor Gluck, of Berlin, demonstrated his method of performing total extirpation of the larynx, and also exhibited a double canular, with tube attachments for increasing the vocal sounds, in cases of complete extirpation. As this will be published elsewhere, I will not dwell upon it further.

Following this meeting, an unofficial gathering took place at the home of Sir Felix Semon. The advisability of combining the Ear, with the Nose and Throat in International Congresses was discussed. It appeared to be the sentiment of the majority, that there would be too many subjects, and the discussion consequently would be too lengthy, to warrant the combination.

In the evening a reception was given at the home of Mr. Charters Symonds, and the next evening the closing feature of the celebration was a dinner given by Sir Felix Semon, at the German Atheneum, followed by a reception at his home.

Senor Garcia was present at both these functions, and ate and drank as though he had been more successful than his illustrious fellow countryman, De Soto, in finding the fount of perpetual youth. Thus ended this celebration of another Centenary, an occurrence so rare, that medical history records but two similar happenings—the Centenaries of Moses Montefiore, and Professor Chevreul.

In this manner did our patriarch, in full possession of mental and bodily faculties, receive the just homage of his children both in medicine and in music. He not only created a method of singing known as the Garcia method, but added the achievement of presenting to science an instrument, which has been a boon to thousands of suffering humanity.

I have the honor to present to the Section, a translation of the letter expressing his gratitude for the part you bore in the Celebration.

## TRANSLATION OF SENOR GARCIA'S LETTER.

Mon Abri, Cricklewood-England, March 17th, 1905.

*To New York Academy of Medicine—Section of Laryngology.*

SIRS—In addressing to you these words, I am moved by sentiments which are inspiring to me and come from my heart. I desire to express to you my lively appreciation, not only for all the works of goodness, of kindness, and sympathy which I have received, but also for the honors with which you have overwhelmed me, and which surpasses anything a most ambitious dream might have suggested.

I would wish that each Society, each member who has contributed to it, should know that I feel and appreciate deeply the importance of the steps, proceedings of all kinds they have seen fit to take, regardless of any possible inconveniences.

Believe me yours sincerely,

MANUAL GARCIA.

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The Early Diagnosis of Malignant Disease of the Naso-pharynx—

STENGER—*Deutsche med. Wochenschr. Leipzig.*, Mar. 30, 1905.

The early symptoms of malignant tumors of the naso-pharynx, before they have reached a size sufficient to cause obstruction to breathing, are referable to the effects of the growth upon the neighboring organs. Among these, according to observations made by the author on two cases, are neuralgic pain in the ear and behind the mastoid process, and deafness and tinnitus caused by obstruction of the Eustachian tube. Both the cases here reported were treated for some time for tubal obstruction, although a small tumor could be seen distinctly in the naso-pharynx.

YANKAUER.

## SOCIETY PROCEEDINGS.

### AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

*Eleventh Annual Meeting, held in Boston, Mass., June 5, 6 and 7,  
1905.*

DR. FREDERICK CHEEVER SHATTUCK JACKSON, Professor of Clinical Medicine, Harvard Medical School, delivered an address of welcome on behalf of the local medical profession.

#### PRESIDENT'S ADDRESS.

DR. FREDERIC C. COBB, of Boston, in his opening address, said that the foundation of this Society and its phenomenal success, rested upon this one principle; to be fair to all, and to give to every worthy specialist the opportunity to demonstrate his power, to meet others, and to exchange his views for theirs. This was the essence of true democracy, and it could only be a failure when self-seeking and demagogism took the place of public spirit and a desire for truth.

#### EXHIBITION OF CASES.

##### **Tympano-Mastoid Exenteration, showing Healing of Cavity by Blood Clot, and Wound by Subcutaneous Silk Suture.**

DR. FRANK B. SPRAGUE of Providence, R. I. showed this case. The patient was a boy of 19, who gave a history of chronic suppurative otitis media, dating back fifteen years. Three weeks ago Dr. Sprague performed a radical mastoid operation after the Stacke-Zanfal method. The cavity was allowed to fill by a blood-clot up to the drainage tube, and the external mastoid wound was closed by subcutaneous silk sutures, so that now the scar was scarcely visible. An ordinary cigarette drain was inserted into the tympanum and allowed to come out through the opening of the canal, in which was placed a stiff rubber drainage tube, about half an inch in diameter, for the purpose of giving a good conformation to the canal, and an opening of sufficient size to insert the dressings. The tube was allowed to remain in about a week. At the present time, the whole canal was well formed, and new skin formation was well under way. The case was a good illustration of what the organized

blood clot could do in the repair of the mastoid wound in chronic cases, where radical operation was necessary.

This patient, Dr. Sprague said, prior to the operation, had suffered from epileptic convulsions during the past seven years, the seizures coming on about twice weekly. Since the operation he had been entirely free from attacks, and it would be interesting to note whether it would have a permanent beneficial effect on the epilepsy.

#### A Case of Anglo-Neurotic Oedema.

DR. O. B. DOUGLAS of Concord, N. H. The patient was a man 41 years old, who recently came under the speaker's observation, complaining of a sudden swelling of his tongue. He stated that last Christmas he had had for the first time a similar experience. The swelling first involved one edge of the tongue, and gradually extended to the other, subsiding on the side first affected as it increased on the opposite side, and usually disappearing in the course of twelve hours.

He had also had similar manifestations involving the right arm, face, scrotum, etc., subsiding usually in twelve hours. There was never any pain nor rise of temperature, and usually no premonitions nor discoverable immediate cause. The patient was an habitual drinker of Bass' ale, and occasionally of whiskey. His appetite was usually good; his bowels were regular.

The case was interesting, Dr. Douglas said, on account of the possible occurrence of oedema of the glottis during one of these attacks. Osler had reported a number of similar cases, in two of which death occurred from acute oedema of the glottis.

DR. WOLFF FREUDENTHAL of New York said that from the history given by Dr. Douglas, he was inclined to regard the case as one of urticaria or giant urticaria. He had observed a number of such cases, and in one that he reported about fifteen years ago the larynx was affected. The usual history obtained from these patients was that the attacks followed some indiscretion in diet, and that fact should not be lost sight of in the treatment of these cases.

DR. THOMAS H. HALSTED of Syracuse, N. Y. said he agreed with Dr. Freudenthal that Dr. Douglas' case apparently belonged to one of the varieties of urticaria, and was closely allied to angio-neurotic oedema. In three such cases that had come under his observation, two developed oedema of the glottis.

Dr. Halstead said that one of the most important features in connection with this condition was the possibility of its following

the use of diphtheria antitoxin. It was well known that this remedy frequently gave rise to various types and degrees of urticaria and angio-neurotic oedema, and the possibility of its causing oedema of the glottis, which might be mistaken for the presence of diphtheritic membrane in the larynx, should not be overlooked.

DR. CHARLES W. RICHARDSON of Washington, D. C., said he thought the case shown by Dr. Douglas was one of angio-neurotic oedema, and when it affected the larynx there was usually a great deal of infiltration of the tissues of the neck. In many of the cases there was a marked hereditary taint, and in one case that came under the speaker's observation, the condition could be traced back through three generations. The father had had three attacks in which there was marked oedema of the pharynx and larynx, with threatened suffocation, and the son had two similar but less severe attacks. One peculiarity of the hereditary factor in these cases was that the male members of the family were more prone to be affected than the female. The condition was often associated with errors in diet. It usually subsided very quickly upon purgation and free incision.

DR. WILLIAM L. BALLINGER of Chicago, Ill. said that about eight years ago he reported a case of angio-neurotic oedema which was apparently similar to the one shown by Dr. Douglas. The patient was a young woman of 23 who was on her way to the theatre. While on the train she developed a severe headache, and after traveling about five miles she had an attack of suffocation. She left the train at the next station and was brought to Dr. Ballenger's residence. When he saw her, she was suffering from acute dyspnoea, and upon examination he found the uvula, the lateral wall of the pharynx and also the glottis somewhat oedematous. In addition to that, both sides of the nose were oedematous and much infiltrated, and the patient was in an extremely nervous state of mind. Under the use of astringent applications, the condition practically disappeared at the end of twenty-four hours.

In this case there was no history of any other member of the family ever having been similarly affected. The young woman was a teacher; she was of a neurotic temperament, and had considerable digestive disturbance. There had never been a recurrence.

DR. J. A. STUCKY of Lexington, Ky. asked if there was any history of rheumatism in Dr. Douglas' case. He was inclined to believe that these manifestations were associated with the acute lithaemic condition.

DR. LEWIS A. COFFIN of New York inquired as to the condition of the stomach and bowels in Dr. Douglas' case, and said that while the causes of these manifestations were numerous, he thought that in the majority of cases the condition was due to gastro-intestinal trouble. In one case under his observation, a woman, the immediate symptoms were quickly relieved by sedatives, and this, followed by lavage of the stomach and bowels gave relief for some time; in fact, until another attack was brought on by some indiscretion in diet.

DR. JAMES E. LOGAN of Kansas City, Mo. said he had noticed that many of these patients partook liberally of cheese, especially in the form of Welsh rarebits.

DR. JOHN F. CULP of Harrisburg, Pa. mentioned the case of a woman who developed this condition every time she indulged in eating nuts, and her last attack was produced by eating a small quantity of nut candy. The tongue and palate became very much swollen, and suffocation seemed so imminent that preparations were made to do a tracheotomy. Under applications of cocaine solution, however, and the use of ice, she became comparatively comfortable in a few hours. This patient, Dr. Culp said, had long suffered from chronic indigestion, and had some trouble with her bowels.

DR. HARRY L. MYERS of Norfolk, Va. mentioned a case in which the oedema involved the eyes. This patient gave a distinct history of rheumatism and asthma. In another case, the larynx was much affected. The treatment that seemed most efficacious in the cases he had seen was large doses of benzoate of soda and injections of pilocarpin.

DR. O. B. DOUGLAS, in closing, said that during the patient's first attack adrenalin chloride was applied, and apparently had some good effect. It was tried again in the second attack with no effect whatever. Appreciating that the condition was neurotic in character, he administered whiffs of chloroform until the patient became unconscious, when for the first time the swelling remained stationary. It did not, however, immediately begin to subside.

In reply to various questions, Dr. Douglas said that this man gave no history of rheumatism; he had never been poisoned by ivy or sumach; he was not constipated and had never complained of any stomach symptoms.

Dr. Douglas said that in another case that came under his care recently the oedema of the larynx was relieved by spraying with adrenalin chloride solution, and recovery was very prompt. That patient was a woman.

## PRESENTATION OF INSTRUMENTS.

**Bronchoscope, Oesophagoscope, Tracheoscope, Laryngo-Pharyngeal Speculum.**

DR. CHEVALIER JACKSON of Pittsburg, Pa. exhibited a number of new instruments, including a bronchoscope, an oesophagoscope a tracheoscope, a laryngo-pharyngeal speculum, and a long forceps, and gave a practical demonstration of their use.

DR. THOMAS J. HARRIS of new York asked Dr. Jackson whether the lamps in the instruments he had shown worked properly? He had heard the criticism made that because of deposits of mucus, or for other reasons, the lamps frequently went out in the course of the manipulations, and on that account some operators had gone back to the use of a good reflected head-light.

**A New Septum Cutter.**

DR. WILLIAM L. BALLINGER of Chicago showed this instrument, and demonstrated its use. It was devised for the purpose of facilitating the sub-mucous window-resection of the nasal septum. The mucous membrane was first incised and elevated, and then a small incision was made in the septum. The septum cutter was then introduced, and the operation was rapidly completed. By means of it, a window-resection of the septum could be done in a very few minutes.

**An Improved Tonsillar Snare.**

DR. BALLINGER also showed an improved tonsillar snare for the partial removal of the tonsil.

**An Improved Head Lamp.**

DR. J. A. STUCKY of Lexington, Ky. said that one great desideratum in the nasal sinus and mastoid operation, as well as operations within the pharynx, was plenty of light without too much heat. He considered the lamp he showed an improvement on the Jackson lamp in that it did away, (1) with the metal reflector; (2) it fitted the head comfortably, and could be worn for hours with ease; (3) the sixteen candle power lamp used did not produce as much heat as the ordinary ten candle power; (4) the lamp could be removed or adjusted by an assistant without the operator touching it.

**A New Septotome.**

DR. WALTER A. WELLS of Washington, D. C. showed this instrument, the purpose of which was to cut out of the cartilaginous portion of the septum a tongue-shaped flap, and to accomplish with a single incision at least as much as was done in the Asch operation with two separate incisions. This overcame the necessity of removing one set of scissors to substitute another, which might prove a serious drawback in case one was operating upon a nervous patient under a local anaesthetic.

In the Asch operation, the result of the incisions was to create four small triangular segments, with their points in apposition, which meant that we had four possible points of sloughing. With the instrument shown by Dr. Wells, but a single flap was cut, and this having what many rhinologists considered the ideal shape for this operation, the chances for sloughing should be decidedly lessened.

By means of a screw, the tongue-shaped flap might be shortened to any desired length. The instrument was so constructed that the flap, when cut, was bent well to the other side, thus converting the two stages of the Asch operation into one. Moreover, he thought a decided advantage was gained over the Asch instrument as regarded the introduction of the septotome. There was, in the latter, no sharp point to become engaged in the tissues as it was being introduced. It had a large and a small jaw, the former for the free side; the latter for the side obstructed. Even though one side of the nose be completely obstructed, the shape and size of the smaller jaw was such that it might be wedged in without any laceration of the tissues.

The object of the flat band of steel, which was attached to the larger jaw of the instrument, was that it would act as a spring, and force back into the median line the flap that had been cut out of the septum, a very important provision to prevent its being caught by the instrument as it was being withdrawn.

**Modified Head Lamp.**

DR. WENDELL C. PHILLIPS of New York showed this lamp at the request of Dr. H. Bert Ellis. It was a Nernst light, and could only be used with the alternating current.

1. **A Wire Cheek and Lip Retractor.**
2. **A Safety Pin Closer.**
3. **A Nasal Splint.**

DR. H. P. MOSHER of Boston showed the following new instruments:

1. A wire cheek and lip retractor for use when entering the antrum through the canine fossa, and for dressings by the same route after the operation. The retractor was made of wire and thus was lighter than the ordinary retractor made for that purpose. It had its three prongs so bent that the canine fossa was widely exposed. One end of the retractor was made for the right cheek, and the other for the left. The retractor could be used in order to expose the teeth and gums of both jaws in the ordinary routine of the first examination of a patient.

2. A safety pin closer for use in the oesophagus and the trachea. This device was originated for the case of a patient with an open safety pin, point up, in the oesophagus. The essential part of the safety pin closer was a ring placed at right angles to the end of a long wire handle. The size of the ring was such that it could pass a large oesophageal tube, while the handle was of sufficient length to allow the ring to project well beyond the end of the tube. A forked wire was used with the ring in order to engage the knee of the pin and push it through the ring. As this was done, the point of the pin was disengaged from the mucous membrane and the pin closed. The safety pin closer could be improvised very easily for any length and size of tube, and for any sized pin. A set of oesophageal instruments should have two or three rings of different sizes. By bending the ring upward, so that it was more or less parallel with its long handle, it made a good penny catcher, and by bending the handle somewhat an inch or two above the ring, the ring could be made to hug and explore the front wall, the posterior wall or either side of the oesophagus at will.

3. A nasal splint. This splint was devised in order to treat a case of fracture of the orbital rim of the superior maxilla combined with a fracture dislocation of the nasal process of the same bone. The upper end of the nasal process of the right side projected very markedly outward and caused great deformity. The deformity was readily reduced, but the usual bandages and splints would not hold the fracture in the corrected position. The base ball mask splint was then made. It held the fracture easily, and the result was excellent. The advantages of the new splint were its steadiness and its power.

The splint consisted of an ordinary base ball mask, with two set screws. These could be adjusted laterally and vertically, so that pressure could be applied at any given point on either side of the nose. Owing to the support which the splint obtained from the forehead, the chin and the sides of the face by the pads placed at

those points, the mask could be bound firmly to the head and face, so that it could not slip. The wires of the mask gave such a fixed point of departure for the application of the force of the set screws that as little or as much pressure as was desired could be used. In this way, the splint could be employed either as a retaining apparatus for a fracture, or as a correcting apparatus after operations for old fractures of the nose, with lateral deformity. With such a splint it would be possible to do a certain amount of orthopoedic work, so to speak, on the nose.

After the pressure of the screws was no longer necessary, the screws could be removed and the mask worn alone for a time as a safeguard against any accidental trauma. In the case where the splint was first used, the child wore the mask in this way for a few days. This allowed the parents to leave her at night without anxiety.

#### EXHIBITION OF SPECIMENS.

##### **Epithelioma of the Larynx.**

DR. CHEVALIER JACKSON showed this specimen, which was one of squamous-celled epithelioma of the larynx, and was removed post-mortem from a patient who had been under the care of Dr. E. S. Montgomery, of Pittsburg. Laryngectomy had been refused by the patient.

##### **Epithelioma of the Antrum.**

DR. JACKSON also showed this specimen, which was removed from a man about sixty. The entire upper maxilla was involved in the epitheliomatous process, and was removed. The patient lived for two years after the operation without a recurrence. The preliminary ligation of the external carotid rendered the operation practically bloodless, and thus a tracheotomy was unnecessary.

##### **Epithelioma of the Larynx.**

DR. JACKSON also exhibited this specimen, which was one of laryngeal epithelioma perforating the thyroid cartilage. It was removed by total laryngectomy, taking out the glands at a subsequent operation. There was a fatal recurrence at the end of four months.

**Obstruction of the Eustachian Tube a Factor in Post-Operative Mastoid Fistula and in Chronic Suppuration of the Middle Ear.** By DR. THOMAS HUBBARD, Toledo, Ohio. (*Published in full in THE LARYNGOSCOPE, page 711.*)

## DISCUSSION.

DR. EDWARD B. DENCH of New York said the occurrence of a post-aural fistula after mastoid operation as the result of permanent occlusion of the Eustachian tube was a possibility, but he thought it was rare. Personally, he had never seen it. In a certain number of cases these post-operative fistulae persisted for some time, and the explanation offered by Dr. Hubbard for the chronic discharge might be the correct one. Almost invariably, however, the persistent suppurative process could be traced to the presence of a small piece of necrosed bone that had been left behind.

The speaker emphasized the absolute uselessness of depending on drainage through the Eustachian tube, and in any case where the otologist had to deal with a foul, persistent discharge resulting from the presence of dead bone, there was only one thing to do, and that was to remove the cause of the suppuration by surgical intervention.

DR. MAX A. GOLDSTEIN of St. Louis said that at the last Section Meeting he showed two cases where there was a distinct connection between the mastoid fistula and the Eustachian tube, so that by catheterization of the tube, and blowing air or vapor through the catheter, mucus from the Eustachian tube could be ejected through the mastoid fistula. In both of these instances the Eustachian tubes were perfectly free, and their contents were mucous in character—not muco-purulent.

**Report of a Case of Carcinoma of the Larynx.** By DR. S. E.

SOLLY, Colorado Springs, Colo.

The patient was a woman 43 years old who came under observation in September, 1904. Two years before that date she had first complained of hoarseness, which gradually became more severe, until her voice was completely lost. Three months ago she had begun to suffer from gradually increasing dyspnoea. Inspection of the larynx showed a nodular tumor growing from the anterior wall, and involving about two-thirds of its circumference. Upon microscopical examination of a section of the growth, it was demonstrated to be carcinoma. A tracheotomy became necessary to relieve the dyspnoea, and subsequently Dr. W. W. Keen, of Philadelphia, did a total laryngectomy. About a month later, some enlargement was observed over the right lobe of the thyroid. The patient refused further operative interference, and died about two months after the operation, the direct cause of her death was obscure, even after a

thorough post-mortem investigation. One theory advanced was that the direct cause of death was a lack of parathyroid secretion, one of the parathyroids having been removed at the operation, while the remaining three were involved in the recurrent carcinoma.

DR. CHEVALIER JACKSON of Pittsburg said the case reported by Dr. Solly was an exceedingly interesting one, and had been skilfully managed. Professor Keen's technique for total laryngectomy was well known, and could not be much improved, excepting in regard to the Trendelenburg anaesthetizing tube, which he probably would abandon eventually. All the chloroform that was required could be very easily given on a gauze sponge held in a haemostatic forceps.

Dr. Keen had abandoned preliminary tracheotomy, and Dr. Jackson said he thought it was entirely unnecessary to keep these patients breathing through a tracheotomy canula for a week prior to the operation. The tracheotomy, if one was necessary, could be done at the time of the operation, the only argument against this being the advantage of a preliminary union of the trachea to the neck integument.

It was a good idea to have these patients sit up as early as possible after the operation, as many of the resulting pulmonary complications were the result of keeping them in bed too long, especially if supine. Morphine and deep anaesthesia were the other two causes of pneumonia.

The speaker said there was one feature of the treatment described in Dr. Solly's paper that he wished to criticise, and that was the giving of nutrient enemata. He regarded them as a delusion and a snare, although it was sometimes necessary to give them to satisfy the family. He did not think they were of any value as a means of prolonging life. While the rectum was a good thing to drink out of, it was a poor thing to eat out of. Thirst could be quenched, but hunger could not be appeased. A stomach-tube was harmless, and enabled the placing of food where it could do some good. The odor of rejected alleged nutrient enemata made one hope that none had been absorbed.

Dr. Jackson said that in one of his cases of total laryngectomy he removed the involved pneumogastric nerve and the common carotid and jugular, and the patient apparently suffered no ill effects from it. About four months later the malignant process for which the operation had been done recurred in a gland on the opposite side of the neck; this increased in size until it pressed upon the pneumogastric nerve on that side, with resulting cadaveric paralysis, so that

the patient could not expectorate, and he literally drowned in his own secretions. With each respiratory movement, the secretions bubbled up into the larynx, and then receded into the bronchi, until cyanosis and death occurred.

While he regarded Dr. Solly's ingenious parathyroid theory plausible, and probably correct, he would ask if any nerve involvement had been noted?

DR. H. W. LOEB of St. Louis said that of five cases of laryngectomy that had been under his observation, the first three died of a recurrence of the disease. In one of these there was a partial laryngectomy followed by a total laryngectomy, and finally death. In the other two, recurrence and death took place within six months after the complete operation. The fourth case was that of a stone-mason who had been treated by another physician for supposed syphilis of the larynx. The case proved to be one of carcinoma, as demonstrated by the microscope, and the entire larynx was removed. The man made an uneventful recovery, and was still enjoying good health, working at his trade, fifteen months after the operation, without any signs of a recurrence.

In the fifth and last case the larynx was removed without a preliminary tracheotomy. For a week after the operation the patient was fed by means of the stomach-tube. On the seventh day, while sitting up in bed, he had a sudden gush of blood from the mouth, and died. At the post-mortem the operative wound was found to be in excellent condition, and death proved to be due to a pulmonary embolism.

DR. JOHN F. WOODWARD of Norfolk, Va. said that in 1899 he was consulted by a man 40 years old who complained of hoarseness. There was neither swelling nor tumor, nor other apparent cause for the hoarseness. About three months later, however, a swelling was noticed between the true and false cords on the left side. He was treated for a time, and his symptoms improved, but subsequently he complained of dyspnoea, and there was a swelling over the entire inner portion of the left larynx. A swelling of the thyroid was also noticed at that time. He was lost sight of again, and when he reappeared, about six months later, he said that he had visited the Johns Hopkins Hospital, where he had been told that he had carcinoma of the larynx and thyroid. At first he refused operation, but finally returned and begged to have something done for him. With the assistance of Dr. Joseph White, of Richmond, Va., a tracheotomy was done under cocaine with considerable difficulty, on account of the thickened tissues. The patient returned to his work

as a railroad man, and remained comparatively well for about eighteen months. The pneumogastric nerve then showed evidence of involvement by pressure, and the patient died by being drowned in his own secretions, as in the case reported by Dr. Jackson. Dr. Woodward doubted the value of late operations in these cases, inasmuch as tracheotomy seemed to promise as much comfort and prolongation of life.

DR WENDELL C. PHILLIPS of New York said that in connection with the discussion of Dr. Solly's paper, the fact should not be lost sight of that those men who operated with comparative frequency for the removal of the larynx, either partial or complete, advocated a preliminary tracheotomy, and they did so for the reason that their final results were better, so far as the occurrence of septic pneumonia was concerned.

DR. E. FLETCHER INGALS of Chicago said we should not lose sight of the rule that laryngectomy should not be done in extrinsic cases; that is, when the disease had extended outward beyond the walls of the larynx, but in intrinsic cases the results were often very favorable. The speaker said he had in mind two such cases where the operation was done for him between two and three years ago. In both instances the laryngectomy was done by the Keen method; in one of them a preliminary tracheotomy was done, and in the other it was not. Whether such a preliminary tracheotomy tended to prevent the onset of a septic pneumonia was doubtful. An interesting feature in connection with his cases was that both patients were able to enunciate very distinctly after the operation, although the trachea was stitched to the skin, and one of them had learned to talk so that he could be heard distinctly fifteen or twenty feet.

DR. SOLLY, in closing, said that in the case he had reported, the condition was an intrinsic one, and very clearly defined.

In the case reported by Dr. Jackson, the patient's death was apparently due to pressure on the opposite pneumogastric, and this might have occurred in his own case, although no nerve elements were found in the tissues removed at the autopsy, and there were no evidences, during life, that the opposite pneumogastric was involved in the recurrent growth. The patient raised a little frothy secretion just prior to his death, and on section of the lungs, some frothy matter was found there. The post-mortem was very carefully made, and no thrombus nor embolus was discovered; neither were there any evidences of renal disease, although one of the kidneys was small.

**An Unusual Case of Laryngeal Syphilis, Requiring Tracheotomy.**

By DR. CLEMENT F. THEISEN, Albany, N. Y. (*Published in full in THE LARYNGOSCOPE, page 691.*)

**A Case of Infective Thrombosis of the Sigmoid and Lateral Sinuses after Acute Mastoiditis; Death from Meningitis; Autopsy Report.** By DR. ARNOLD KAPP, New York, N. Y.

The author said that this case was instructive from the following points: 1. In confirmation of Leutert's assertion that a rise of temperature persisting for more than a day or two in the usual afebrile course of an aural suppuration was always connected with disease of the sinus if we could exclude a superficial infection, pus retention in the tympanum, or purulent meningitis, and that we unquestionably erred gravely in not opening the sinus sooner than we did. 2. The microscopic appearance of the clot did not always indicate its harmlessness. Though it seemed hardly proper to consider every clot as septic, for the formation of a thrombus was a natural process to protect the body from infection by any of the blood-vessels, yet by so doing, possibly fewer errors of omission would be committed.

As to the value of the so-called re-establishment of the circulation: It was generally stated that in dealing with a thrombosis, the thrombus had to be removed with the curette until the return flow of blood was re-established. This might remove all of the infectious material in many cases; at the same time, it did not necessarily cure a parietal thrombus or localized disease of the sinus wall, nor arrest the pyaemic process. In the case reported, notwithstanding the re-establishment of the circulation at two operations, infectious clots reformed from a diseased sinus wall in the unopened part of the sinus near the torcular, as was shown at autopsy. It would seem much safer, in cases of unquestioned infective thrombosis in the lateral sinus, to expose that sinus to the torcular, then shut off the circulation at that point by firm pressure, and exercise the entire external wall of the sinus. Any remaining disease of the inner sinus wall could then be readily observed and treated, additional infectious clots could not form, and the danger of a meningeal extension was diminished.

**Killian's Inspection of the Trachea and Oesophagus.** By DR. H. P. MOSHER, Boston, Mass.

This was demonstrated on the dead subject. Instead of attempting the operation with the patient in a sitting position, as was usually done, Dr. Mosher said that a much better view of the parts could

be obtained by placing the patient on his back, with the head hanging down over the edge of the table. If Killian's method failed after a short trial, he advised doing a tracheotomy, and then inserting a pair of bent forceps and seizing the foreign body under the guidance of a Kelly cystoscope.

In the removal of foreign bodies from the oesophagus, Dr. Mosher said he did not favor the use of the old-fashioned probag.

#### SYMPOSIUM—INTRACRANIAL COMPLICATIONS OF MIDDLE EAR SUPPURATION.

**Meningitis; Its Symptomatology, Diagnosis and Treatment, with Report of a Case.**, By DR. S. MACCUEN SMITH, Philadelphia, Pa. (*Published in full in THE LARYNGOSCOPE, page 513, No. 7, volume XV.*)

**Symptomatology, Diagnosis and Treatment of Encephalitis and Brain Abscess.** By DR. FREDERICK L. JACK, Boston, Mass. (*Published in full in THE LARYNGOSCOPE, page 521, No. 7, volume XV.*)

**Symptomatology, Diagnosis and Treatment of Sigmoid Sinus Thrombosis.** By DR. JAMES F. MCKERNON, New York, N. Y. (*Published in full in THE LARYNGOSCOPE, page 528, No. 7, volume XV.*)

**Pathologic Findings of Intra-Cranial Complications of Middle Ear Diseases.** By DR. THOMAS J. HARRIS, New York, N. Y. (*Published in full in THE LARYNGOSCOPE, page 535, No. 7, volume XV.*)

#### DISCUSSION.

DR. EDWARD BRADFORD DENCH, of New York opened the general discussion on the subject, and gave the following personal statistics: He had observed twelve cases of brain abscess, 9 temporo-sphenoidal, 3 cerebellar; 38 cases of sinus thrombosis, in 13 of which the internal jugular was excised; 28 cases of epidural abscess, and four cases of meningitis. These statistics were fairly accurate, excepting those for meningitis. Under that heading many cases escaped observation, as only those operated upon had been recorded. From these statistics it appeared that the relative frequency of the various intra-cranial lesions had been as follows: epidural abscess, 34.1%; brain abscess, 14.6%; sinus thrombosis, 46.3%; general meningitis, 4.8%. Of the sinus thrombosis cases, the jugular was tied in 36.8%.

Regarding the mortality of the various conditions, of the twelve cases of brain abscess, three were cured and nine died; of the 38 cases of sinus thrombosis, 32 were cured and six died. In 25 cases, the internal jugular was not excised, and of these, ten recovered and three died. Of the four cases of meningitis operated on, one was cured and three died.

From these statistics it appeared that the two classes of cases that were attended by the highest mortality were brain abscess and diffuse meningitis, either of the purulent or serous variety. Epidural abscess and sinus thrombosis, including those cases where the jugular demanded excision, need not be looked upon as being of such a very serious character if the cases were operated upon early.

DR. WENDELL C. PHILLIPS of New York said that the series of papers just presented very completely covered the subject, and little could be added in the way of criticism. The suggestions they contained and the methods outlined were entirely in harmony with the experience of men who were engaged in this line of work. There were one or two points, however, that he wished to emphasize, and one was in connection with Dr. Smith's paper. Statistics show that injuries to the head were quite frequently associated with attacks of meningitis from middle ear suppuration. Dr. Phillips said he could recall one or two instances in his own series of cases of chronic middle ear suppuration going on for years until the patient received an injury to the head, and this was followed by an intra-cranial complication. Such a sequence was not difficult to explain. The only barrier between the suppurative process in the ear and the brain was a rather thin plate of bone, and it was quite probable that a severe injury to head might be the actual exciting cause of the intracranial complication.

Dr. Smith in his paper, tried to differentiate between the different varieties of meningitis, and Dr. Phillips thought that many of the points brought out were correct. As a general statement, it might be said that meningitis, in contra-distinction to brain abscess and lateral sinus thrombosis, was more frequently associated with severe and long-continued pain in the head. While pain might be present in all varieties, that accompanying meningitis was more intense than that complained of in the other forms of intracranial complication.

Temperature could not be relied upon as a characteristic symptom, excepting that associated with sinus thrombosis. In that condition it was quite characteristic when the sphenoid had become extensively diseased, but not in the early stages. The speaker said

he had recently opened a lateral sinus in which the diagnosis was based largely on the temperature variations, ranging from high to sub-normal.

Dr. Phillips said he did not regard the pulse as particularly characteristic of any of the conditions under discussion, excepting sinus thrombosis. A rather well marked chill could also be usually looked for in that condition, and this was not at all common in the meningitis cases. He did not think a chill could be regarded as one of the symptoms in differentiating between brain abscess and meningitis.

The speaker said he was surprised that greater emphasis was not placed upon the importance of lumbar puncture. He had come to make use of it in practically all of his cases of meningitis, and by making a careful examination of the cerebro-spinal fluid, the exact character of the intracranial condition could often be determined.

In regard to hernial protrusions following large openings in the skull, the speaker said it was now generally recognized that the main portion of the protruding mass was not brain tissue at all, but granulation tissue, and it could be sliced off to the level of the bone with comparative immunity.

In differentiating between lateral sinus thrombosis and brain abscess, the mentality of the patient often proved a valuable and helpful symptom. As Dr. McKernon had pointed out, cerebration was rarely interfered with in the former condition, the mind usually remaining clear until a late stage, whereas with brain abscess we were very apt to get early signs of mental impairment, and the same was true of meningitis.

The fact could not be too strongly emphasized that serious intracranial complications were more frequently observed in connection with chronic than with acute middle ear disease, and this should be regarded as an additional reason why those cases should receive more careful consideration than they did. A minute examination of the histories of acute mastoid cases would often show that they were really complications of chronic suppuration of the middle ear. These patients not infrequently neglected to give a history of former ear discharge, or of previous milder attacks of mastoid involvement. This was an argument in favor of the radical operation in selected cases, where the opinion was well grounded that further local treatment would prove of no avail.

Dr. Harris' paper contained the statement that among thirty cases of purulent meningitis there was one recovery. In that single instance, Dr. Phillips said, the meningitis was probably serous in

character. The purulent form he regarded as invariably fatal, and he thought it was useless to operate on such cases. In two instances of supposed purulent meningitis that came under his observation during the past winter, the condition proved to be epidemic cerebro-spinal meningitis. One of these recovered; the other died. These cases had been reported in full at the recent meeting of the American Otological Society.

DR. CHARLES W. RICHARDSON of Washington, D. C. said there were some points that he thought were not sufficiently emphasized in the paper on meningitis. One was, the improbability of any form of treatment being beneficial in pure lepto-meningitis. The Germans had reported good results from lumbar puncture, but those were probably not cases of pure lepto-meningitis. The speaker said he had operated on three such cases without any effect, the patients rapidly succumbing to the disease. This was not surprising, when we considered the character of the lesion in these cases. Masses of purulent exudate covered the surface of the brain, and invaded the interlobular fissures, rendering recovery practically impossible.

In Dr. Jack's excellent paper there was one point that was not sufficiently emphasized, and that was in regard to the aphasia that occurred in the left-sided cases. This aphasia was usually one of the earliest symptoms. Of course, it did not occur in the right-sided cases, (excepting in left-handed patients), but when it came on in the course of suppurating ear disease, even without other symptoms, the occurrence of a brain abscess on the left side was very probable.

Dr. Richardson said that in the treatment of the radical mastoid wound, he did not look with favor upon the application of skin-grafts to the freshly exposed dura. He regarded that as a bad method of treatment. The application of skin grafts was apt to give rise to the development of granulation tissue, and cause unpleasant symptoms. The speaker said he was also opposed to the treatment of the wound by the formation of a blood-clot, as that was another method by which infection could be readily carried into the cranial cavity.

*(To be Continued.)*

## ABSTRACTS.

**Carcinoma of the Velum Patati Cured by Radium.**—A. PERUGIA.

—*Gaz. degli Ospedali*, No. 1, January, 1905, *Rev. Hebd. de Laryngol. d'Otol. et de Rhinol.*, May 6, 1905.

A well developed carcinoma of the velum palati was treated by means of the rays of radium from the end of June to the latter part of October. The tumor diminished little by little and finally disappeared completely. The mucous membrane recovered its normal appearance. According to Perugia, the rays of radium act first on the cells of the connective tissue and secondarily on the parenchymatous cells. On account of this special property, the total disappearance of the carcinomatous cells is supposed to be effected.

**Death Due to Careless Plugging of the Nose; with a Few Remarks on the Treatment of Nasal Hemorrhages.**—W. FREUDENTHAL (New York)—*Internat. Journ. Surg.*, N. Y., July, 1905.

Freudenthal was called to see a patient whose nose had been plugged for hemorrhage by the family physician. For twenty-four hours efforts to remove the plug by way of the nose were fruitless, and produced additional hemorrhage. As the temperature was 105° with all signs of septic infection, it was finally necessary to open the nose by incisions made just as for resection of the superior maxilla, and the maxillary sinus was laid open, and in it, with granulations, was found the tampon. The septic condition, however, failed to subside, and the patient died four days later. As to how the practitioner managed to introduce it into the sinus Freudenthal thinks cannot be answered definitely, but he suggests that either the nasal wall of the antrum was so fragile that it broke down easily, or that there was an unusually large ostium. The author has found very few of the newer remedies and devices for arresting hemorrhage of value, but thinks his freedom from cases of post operative hemorrhage during the last few years is due to the fact that after most operations on the nose he administers stypticin 0.006 to 0.01 three, four or five times daily.

